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ARTICLE I.

A DESCRIPTION OF THE AMERICAN YELLOW FEVER, IN A letter from Dr. JOHN LINING, Physician at Charlestown, in South-Carolina, to Dr. ROBERT WHYTT, Professor of Medicine in the University of Edinburgh.*

"CHARLESTOWN, December 14, 1753.

"SIR—In obedience to your desire, I have sent you the history of the yellow fever as it appeared here in the year 1748, which, as far as I can remember, agreed in its symptoms with the same disease, when it visited this town in former years. In *this* history, I have confined myself to a faithful narration of facts, and have avoided any physical inquiry into the causes of the several symptoms in this disease; as that would have required more leisure than I am, at present, master of, and would perhaps have been less useful than a plain description.

"I wrote this history, so far as it relates to the symptoms and prognostics, in the year 1748, when we had the disease last in this place; intending afterwards, if it returned, to add, from further

* We believe we are conferring an acceptable service to our subscribers, in publishing the above interesting and very accurate account of our endemic fever, by Dr. Lining, a physician who held an eminent station in his profession, and was highly respected, not only here, but in Europe. The essay is taken from the Edinburgh Essays, a work out of print; and, we believe, but few of our medical brethren of the south have read it, which has been a strong motive in re-publishing it.

experience, the method of cure, and likewise an account of any other symptoms which might attend it; but, as no such opportunity has offered, I must now omit that part. However, I hope the description which I have given of this dreadful malady, which so frequently rages like the plague in the southern parts of *America*, is so full, that a physician may, from thence, not only form a true judgment of its nature, but likewise be able to deduce and communicate some more certain method of cure than has perhaps hitherto been used.

“I am sorry I could not give a fuller account of the dissections of those who died of this disease, having unfortunately lost my notes taken from those dissections. I am,” &c.

I. That fever, which continues two or three days, and terminates without any critical discharge by sweat, urine, stool, &c. leaving the patient excessively weak, with a small pulse, easily depressible by very little motion, or by an erect posture, and which is soon succeeded with an icteritious colour in the white of the eyes and the skin, vomiting, hæmorrhages, &c. and these, without being accompanied with any degree of a febrile pulse and heat, is called in America, the *Yellow Fever*.

II. This fever does not seem to take its origin from any particular constitution of the weather, independent of infectious *miasmata*, as Dr. Warren* has formerly well observed.

For, within these twenty-five years, it has only been four times epidemical in this town, namely, in the autumns of the years 1732, 39, 45, and 48, though none of these years (excepting that of 1739, whose summer and autumn were remarkably rainy) were either warmer or more rainy (and some of them less so) than the summers and autumns were in several other years, in which we had not one instance of any one being seized with this fever; which is contrary to what would probably have happened, if particular constitutions of the weather were productive of it, without infectious *miasmata*. But, that this is really an infectious disease, seems plain, not only from this, that almost all the nurses caught it and died of it; but likewise, as soon as it appeared in town, it

* In his treatise concerning the malignant fever in Barbadoes, page 8.

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soon invaded new comers, those who never had the disease before, and country people when they came to town, while those who remained in the country escaped it, as likewise did those who had formerly felt its dire effects, though they walked about the town, visited the sick in all the different *stadia* of the disease, and attended the funerals of those who died of it. And, lastly, whenever the disease appeared here, it was easily traced to some person who had lately arrived from some of the West-Indian islands, where it was epidemical. Although the infection was spread with great celerity through the town, yet, if any from the country received it in town, and sickened on their return home, the infection spread no further, not even so much as to one in the same house.

III. The subjects which were susceptible of this fever, were both sexes of the white colour, especially strangers lately arrived from cold climates, Indians, Mistees, Mulattoes of all ages, excepting young children, and of those only such as had formerly escaped the infection. And indeed it is a great happiness that our constitutions undergo such alterations in the small-pox, measles, and yellow fever, as for ever afterwards secure us from a second attack of those diseases. There is something very singular in the constitution of the negroes, which renders them not liable to this fever; for though many of these were as much exposed as the nurses to the infection, yet I never knew one instance of this fever amongst them, though they are equally subject with the white people to the *bilious fever*.

IV. This fever began in the middle or rather towards the end of August, and continued till near the middle of October, when the weather became cold enough to prevent its further progress. In the beginning of August, the weather was warmer than I had ever known it in that month: The mercury in Fahrenheit's thermometer, for some days, at 2 o'clock, P. M. rose, in the shaded air, to the 96th degree, at which time several people died of apoplexies. The latter part of August, and the first week in September, were much more temperate; the weather being then much as usual at that season of the year. The second week in September was cold, the wind being constantly easterly, and the weather cloudy; after which time I kept a register of the heat of the shaded air; an abstract of which follows:

In the latter part of September, and from the 1st to the 18th of October,

	September.	October.
The mean heat at 2, P. M. was	72	65
The mean nocturnal heat was	68	54
The greatest heat at 2, P. M. was	79	75
The least heat at 2, P. M. was	60	52
The greatest nocturnal heat was	71	70
The least nocturnal heat was	62	42
The greatest increase of heat in 24 hours was	13	17
The greatest decrease of heat in 24 hours was	9	22

In all the month of September, and in the greatest part of October, the wind was easterly.

The depth of the rain in August, September, and October, respectively, was 6.881, 7.442 and 5.550 inches; which, though it exceeded the rain of these three months, taken together at a medium, from the ten preceding years, by 5.570 inches, yet it was inferior to that which fell in the same months in several other years; for in the years 1747, 50, 51, and 52, there fell respectively, in those three months of these years, above 21, 22, 24 and 26 inches of rain.

V. For a day or two before the attack of the fever, people in general complained of a headache, pain in the loins and extremities, especially in the knees and calves of the legs, loss of appetite, debility and a spontaneous lassitude.

Some, however, were seized suddenly, without any such previous symptoms.

VI. After a chillness and horror, with which this disease generally invades, a fever succeeded; in which,

1. The *pulse* was very frequent till near the termination of the fever, and was generally full, hard, and consequently strong. In some it was small and hard; in others, soft and small; but, in all those cases, it frequently varied in its fullness and hardness. Towards the termination of the fever, the pulse became smaller, harder, and less frequent. In some there was a remarkable throbbing in the carotids and in the *hypochondria*; in the latter of which, it was sometimes so great, that it caused a constant tremulous motion of the *abdomen*.

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2. The *heat*, generally, did not exceed 102 degrees of *Fahrenheit's* thermometer; in some it was less, it varied frequently, and was commonly nearly equal in all parts, the heat about the *præcordia* being seldom more intense than in the extremities, when these were kept covered. In the first day of the disease, some had frequent returns of a sense of chillness, though there was not any abatement of their heat. In a few, there happened so great a remission of the heat for some hours, when at the same time the pulse was soft and less frequent, and the skin moist, that one, from these circumstances, might reasonably have hoped, that the fever would only prove a remittent or intermittent. About the end of the second day, the heat began to abate.

3. The *skin* was sometimes (though rarely) dry; but oftener, and indeed generally, it was moist and disposed to sweat.

On the first day, the sweating was commonly profuse and general; on the second day, it was more moderate: But, on both these, there happened frequent and short remissions of the sweatings; at which times the febrile heat increased, and the patient became more uneasy. On the third day, the disposition to sweat was so much abated, that the skin was generally dry; only the forehead and backs of the hands continued moist.

4. The *respiration* was, by no means, frequent or difficult, but was soon accelerated by motion, or the fatigue of drinking a cup of any liquid.

5. The *tongue* was moist, rough and white, even to its tip and edges. On the second day, its middle in some was brown. On the third day, the whiteness and roughness of the tongue began to abate.

6. The *thirst* in very few was great.

7. A *nausea*, vomiting or frequent reachings to vomit, especially after the exhibition of either medicines or food, came on generally the third day, as the fever began to lessen; or rather, as the fulness of the pulse, heat, and disposition to sweat, began to abate. Some, indeed, but very few, on the first day, had a vomiting either bilious or phlegmatic.

8. Very few complained of anxiety or oppression about the *præcordia* or *hypochondria*; nor was there any tension or hardness about the latter.

9. On the first day they generally dozed much, but afterwards, were very watchful.

10. Restlessness and almost continual jactations came on the second day.

11. A great despondency attended the sick from the first attack.

12. The strength was greatly prostrated from the first attack.

13. The pain in the head, loins, &c. of which they had complained (V.) before the attack, were greatly increased, and in some, the pain in the forehead was very acute and darting; but those pains went generally off the second day.

14. The face was flushed, and the eyes were hot, inflamed, and unable to bear much light.

15. On the first day, many of them, at times, were a little delirious, but afterwards not until the recess of the fever.

16. The blood saved at venesection had not any inflammatory crust; in warm weather, it was florid like arterial blood, and continued in one soft homogeneous-like mass, without any separation of the *serum* after it was cold. When there was any separation, the *crassamentum* was of too lax a texture.

17. The stools, after the first day, were fetid, inclined to a black colour, and were very rarely bilious, soft or liquid, excepting when forced by art; for an obstinate costiveness attended the febrile state.

18. The urine was discharged in a large quantity, was pale, sometimes limpid, and rarely of a higher than a straw colour, except when the weather was very warm, and then it was more saturated, of a deep colour, and discharged in smaller quantities. It had a large cloud, except when it was very pale or limpid; but more generally it had a copious white sediment, even in the first day of the fever.

On the second day, the urine continued to be discharged very copiously; in some, it was then turbid, and deposited a more copious sediment, than on the first day; this sediment was sometimes of a brownish colour; in which case, it was generally followed by bloody urine, either about the end of the second, or beginning of the third day. The colour and quantity of the urine, discharged in equal times, were remarkably variable, being now

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limpid, then of a deeper colour, now discharged in a larger, then in a smaller quantity, which could not be ascribed to any change made either in the quantity or quality of the drink, &c.

VII. The fever accompanied with those (VI.) symptoms, terminated on the third day, or generally in less than 72 hours from the first attack, not by any assimilation or coction and excretion of the morbid matter; for, if by the latter, there would have been some critical discharge by sweat, urine, stool, or otherwise, none of which happened; and if by the former, nothing then would have remained but great debility. No; this fever did not terminate in either of these salutary ways, excepting in some, who were happy enough to have the disease conquered in the beginning by proper evacuations, and by keeping up a plentiful sweat, till the total solution of the fever, by proper mild diaphoretics and diluents. But those who had not that good fortune, however tranquil things might appear at this period, (as great debility and a little yellowness in the white of the eyes, seemed then to be the chief complaints, excepting when the vomiting continued,) yet the face of affairs was soon changed; for this period was soon succeeded by the second *stadium*; a state, though without any fever, much more terrible than the first; the symptoms in which were the following:

VIII. 1. The pulse, immediately after the recess of the fever, was very little more frequent than in health, but hard and small. However, though it continued small, it became, soon afterwards, slower and very soft; and this softness of the pulse remained as long as the pulse could be felt. In many, in this stage of the disease, the pulse gradually subsided, until it became scarce perceptible; and this, notwithstanding all the means used to support and fill it; and, when this was the case, the icteritious-like suffusion, the vomiting, *delirium*, restlessness, &c. increased to a great degree. In some, the pulse, after being exceedingly small and scarce perceptible, recovered considerably its fullness; but that favourable appearance was generally of but short continuance.

2. The heat did not exceed the natural animal heat; and when the pulse subsided, the skin became cold, and the face, breast, and extremities, acquired somewhat of a livid colour.

3. The skin was dry when the weather was cold, but was moist and clammy when the weather was hot.

4. The respiration was natural or rather slow.

5. The tongue was moist and much cleaner than in the former (VI. 5.) stage; its tip and edges, as also the gums and lips, were of a more florid red colour than usual.

6. Very few complained of thirst, though they had a great desire for cold liquors.

7. The vomiting or reaching to vomit increased, and in some was so constant, that neither medicines nor aliment of any kind were retained. Some vomited blood; others only what was last exhibited, mixed with phlegm; and others again had what is called the *black vomit*.* The reaching to vomit continued a longer or shorter time, according to the state of the pulse; for, as that became fuller, and the heat greater, the reaching to vomit abated, and, *e contra*.

8. The inquietude was very obstinate, and when they dozed, their slumbers were but short and unrefreshing. There were some who were drowsy; but these always awaked, after the shortest slumbers, with a great dejection of spirits and strength.

* That which is called the *black vomit*, at first sight, appears to be black; but, on a more careful examination, I observed, that this colour proceeded from a great quantity of small, flakey, black substances, which floated in the liquor thrown up by vomit; but the colour of this liquor was much the same with that which the patient had last drank, and was, by no means, black. Those black flakey substances are the bile mixed with, or adhering to, the *mucus* which lined the stomach. For, upon dissection of those who died of this disease, not only in this but former years, I always observed, that the *mucus* of the stomach was abraded, and the bile in its *cystis* was black, and sometimes very viscid. In a lad who died of this disease in the beginning of the fourth day, and who was immediately opened, the bile was not only black, but had the consistence of thick Venice turpentine, and was exceedingly tough. On the inside of the stomach, there were several carbuncles or gangrenous specks. And, in all those I have dissected, who have died of this disease, I have not only always observed the same, but likewise that the blood was very fluid, and the vessels of the *viscera* much distended; from whence I have been very inclinable to think, when the disease was not conquered in its first *stadium*, that, about the time of the termination of the fever, there was a *metastasis* of the morbid matter to the *viscera*.

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9. The *jactations* or restlessness was surprising; it was frequently scarce possible to keep the patients in bed, though, at the same time, they did not complain of any anxiety or uneasiness; but, if asked how they did, the reply was, very well.

10. The *debility* was so great, that, if the patient was raised erect in the bed, or, in some, if the head was only raised from the pillow, while a cup of drink was given, the pulse sunk immediately, and became sometimes so small, that it could scarce be felt; at this time, they became cold, as in a *horripilatio*, but without the anserine-like skin: Their skin became clammy, the *delirium* increased, their lips and skin, especially about the neck, face, and extremities, together with their nails, acquired a livid colour.

11. The *delirium* returned and increased; it was generally constant in those whose pulse was small and subsiding.

12. The inflammation of the *tunica conjunctiva* or white of the eyes, increased much, but without pain.

13. A *yellowness* in the white of the eyes, if it did not appear before in the febrile state, became now very observable, and that icteritious-like colour was soon diffused over the whole surface of the body, and was continually acquiring a deeper saffron-like colour. In some indeed no yellowness was observable, excepting in the white of the eyes, until a little before death, when it increased surprisingly quick, especially about the breast and neck.

14. There were many small *specks*, not raised above the skin, which appeared very thick in the breast and neck; but less so in the extremities, and were of a scarlet, purple, or livid colour.

15. In women the *menstrua* flowed, and sometimes excessively, though not at their regular periods.

16. There was such a putrid dissolution of the blood in this *stadium* of the disease, that, besides the vomiting of blood formerly mentioned, and the bloody urine soon to be taken notice of, there were *hæmorrhages* from the nose, mouth, ears, eyes, and from the parts which were blistered with *cantharides*. Nay, in the year 1739 or 1745, there was one or two instances of an hæmorrhage from the skin, without any apparent puncture or loss of any part of the scarf-skin.

17. An obstinate *costiveness* continued in some; in others, the stools were frequent and loose; in some, they were black, liquid,

large, and greatly fatiguing; in others, when the stools were moderate, even though they were black, they gave great relief: in others again, the stools nearly resembled tar in smoothness, tenacity, colour, and consistence.

18. The *urine* was discharged in a large quantity, in proportion to the drink retained by the patient: It was pale, if the patient was not yellow; but if yellow, then it was of a deep saffron colour; in either case it had a sediment, or at least a large cloud, which remained at the bottom of the glass; in some it was very turbid; in others, it was very bloody; and the quantity of blood discharged with the urine, bore always some proportion to the state of the pulse; when that became fuller, the quantity of blood in the urine was diminished. When the pulse subsided, the bloody urine increased, and even returned after it had ceased some days; soon after, the pulse became smaller.

This stage of the disease continued sometimes seven or eight days before the patient died.

IX. When this *stadium* (VIII.) of the disease terminated in health, it was by a recess or abatement of the vomiting, hæmorrhages, *delirium*, inquietude, jactations, and icteritious-like suffusion of the skin and white of the eyes; while, at the same time, the pulse became fuller, and the patient gained strength, which, after this disease, was very slowly.

But, when it terminated in death, those (VIII.) symptoms not only continued, but sooner or later increased in violence, and were succeeded with the following, which may be termed the *third stadium* of the disease, which quickly ended in death.

X. The pulse, though soft, became exceedingly small and unequal; the extremities grew cold, clammy, and livid; the face and lips, in some, were flushed; in others, they were of a livid colour; the livid specks increased so fast, that in some the whole breast and neck appeared livid; the heart palpitated strongly; the heat about the *præcordia* increased much; the respiration became difficult, with frequent sighing; the patient now became anxious and extremely restless; the sweat flowed from the face, neck, and breast; blood flowed from the mouth, or nose, or ears, and in some, from all those parts at once; the deglutition became difficult; the hiccoughs and *subsultus* of the tendons came on, and

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were frequent; the patients trifled with their fingers, and picked the naps of the bed-cloaths; they grew comatous, or were constantly delirious. In this terrible state, some continued eight, ten, or twelve hours before they died, even after they had been so long speechless, and without any perceptible pulsation of the arteries in the wrists, whereas, in all other acute diseases, after the pulse in the wrists ceases, death follows immediately. When the disease was very acute, violent convulsions seized the unhappy patient, and quickly brought this *stadium* to its fatal end. After death, the livid blotches increased fast, especially about the face, breast, and neck, and the putrefaction began very early, or rather increased very quickly.

XI. This was the progress of this terrible disease through its several *stadia*. But, in hot weather, and when the symptoms in the first stage were very violent, it passed through those stages, as Dr. Warren has likewise observed, with such precipitation, that there was but little opportunity of distinguishing its different *stadia*; the whole tragedy having been finished in less than 48 hours.

XII. It was remarkable, that, 1. The infection was increased by warm and lessened by cold weather. 2. The symptoms in the several *stadia* were more or less violent, according to the heat or coolness of the weather. In hot days, the symptoms were not only more violent, but in those who seemed, in moderate weather, to be on the recovery, or at least in no danger, the symptoms were all so greatly heightened, when the weather grew considerably warmer, as frequently to become fatal. In cool days, the symptoms were not only milder, but many, who were apparently in great danger in hot days, were saved from the very jaws of death by the weather becoming happily cooler. 3. The disease was, generally, more fatal to those who lay in small chambers not conveniently situated for the admission of fresh air, to those of an athletic and full habit, to strangers who were natives of a cold climate, to those who had the greatest dread of it, and to those, who, before the attack of the disease, had overheated themselves by exercise in the sun, or by excessive drinking of strong liquors; either of which, indeed, seemed to render the body more susceptible of the infection. Lastly, the disease proved most certainly fatal to

valetudinarians, or to those who had been weakened by any previous disease.

XIII. The prognostics in the first *stadium* are these: 1. The more acute and constant the pains are in the head, loins, knees, &c.; the more the eyes are inflamed, the greater their inability is to bear light; and the more the face is flushed at the first attack, the fever and all the symptoms (VI.) in the first *stadium*, will be the more violent. 2. The more intense the symptoms are in the first state, the sooner will the fever terminate. 3. The sooner the disease runs through the first *stadium*, the shorter will be the duration of the second, *et e contra*. 4. The shorter the duration is of the first, the greater and more certain is the danger in the second state. For, when the fever terminated before the beginning of the third day, death seemed inevitably to be the consequence, as there was then no possibility of supporting the pulse; and as all the bad symptoms were then hurried on with such precipitation, that the patient generally died before the end of the fifth day, excepting a considerable coolness of the weather happily intervened; but, on the contrary, it was a favourable circumstance when the fever was protracted to the end of the third day, without any remarkable hardness or depression of the pulse. 5. A great depression of the pulse, about the termination of the fever, is bad; since, from that circumstance, the vomitings, incessant jactations, the coldness and lividness of the extremities, hæmorrhages, *delirium*, &c. are ushered in with surprising celerity. 6. The more the strength is prostrated from the first attack, the greater is the danger. 7. A vomiting coming on early in the disease, and continuing or increasing, is bad, and generally presages the black vomit. 8. A sediment in the urine, in the first and second day of the disease, is bad; and, the more copious the sediment is, the greater is the danger.

XIV. The prognostics in the second *stadium* are these. 1. An early yellowness in the white of the eyes is bad: When it is observable about the end of the second day, in the first *stadium*, the patient generally dies about the beginning of the fourth day from the first attack of the disease. But, when the yellowness does not appear till the end of the third day, if the patient does not recover, the disease sometimes continues to 9th or 10th day of

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the second *stadium* before the patient dies. When the yellowness of the skin and eyes increases fast, and acquires soon a deep icteritious-like colour, the greatest danger is to be apprehended. 2. If the inflammation of the white of the eyes increases, it is bad. 3. The more inflamed and bloody-like the skin is where it has been blistered, the greater is the danger. 4. If the vomiting continues or increases, it is bad; but the black vomiting is generally mortal. 5. When the pulse varies frequently in its fullness, being sometimes small, then fuller, it is bad. But there was less dependence to be had on the pulse in this than is common in other diseases; for, in some patients, in the second stage of the disease, even within a few hours of their death, the pulse, with respect to its fullness, softness, equality and frequency, has continued like that of one in perfect health, although, from the other symptoms, the death of the patient could be foretold with great certainty. 6. The more the strength of the patient is reduced in the first, the greater is the danger in the second *stadium*. 7. Great restlessness, inquietude, an early *delirium*, and a continuation of it, are very bad. 8. Livid blotches about the neck and breast, a lividness of the lips and nails, flushing of the face, or a livid colour thereof, are sure signs of the quick approach of death. 9. Frequent loose stools, which give not any relief, are bad; and, the sooner they spontaneously happen, the greater is the danger: But those which are black, and continue so without any abatement of the symptoms, are generally mortal. 10. Bloody urine and all hæmorrhages, excepting slight ones from the nose, are bad; and, the more copious they are, the greater is the danger. But a flux of the *menses*, though not at their regular period, if attended with an abatement of the symptoms, is a favourable circumstance; otherwise, it is bad. 11. A suppression of urine, especially in those, who, in the course of the disease, have had large discharges that way, is a certain sign of the quick approach of death.

XV. As to the prognostics in the third (X) *stadium*, it is sufficient to say,

“Nature, alas! was now surpriz’d
And all her forces seized,
Before she was how to resist advis’d.”*

* Dr. Sprat’s account of the plague of Athens.

ARTICLE II.**CASE OF TRAUMATIC TETANUS, SUCCESSFULLY TREATED**

by the application of the actual Cautery; with Observations on that Disease. By ROBERT S. BAILEY, Christ Church Parish, Member of the Medical Society of South Carolina, and Fellow of the Royal College of Surgeons in London.

It may be proper to give a brief history of two cases which occurred in my practice previous to the present one, and which terminated fatally. 1821, February 10th.—I was directed to visit a negro boy, about 16 years. On investigating the nature of the case, I was informed, that a few days ago the boy had been punished for a misdemeanor, and had, in consequence, run away; the weather having been severely cold, he became frost-bitten. I found the toes on both feet in a sphacelated state; he had spasms every four or five minutes, chiefly of the neck and abdomen, which were stiff and contracted; there was a difficulty in swallowing; and he had not had a stool since the 8th instant, which had then been procured by a dose of salts. Cockroaches infused in rum, a popular remedy for complaints of this description in my neighbourhood, and also laudanum, had been given, which caused some degree of stupor; and as the case appeared to me a hopeless one, I recommended that we should try the effects of this remedy for a few hours, before giving any other medicine. In the evening I found him in the same state, and gave him a cathartic of jalap and calomel, with directions to give if it operated, a mixture every three hours, composed of carbonate of ammonia and tincture of opium. I advised that he should have a warm bath, a blister to the neck and each leg; I also directed poultices, with spirits of turpentine in them, to be applied to the wounds. February 11th.—The bowels still confined; the spasms more violent; the muscles of the throat more affected, causing him to foam, extending to the chest also, and producing a difficulty of breathing; the abdomen was hard and contracted; pulse 120; tongue furred; sweats constantly, and paroxysms return every half minute; the limbs likewise considerably affected. Mortification had

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taken place in all the toes; I removed the first joint of the great toe on each foot, but it was not productive of benefit. I prescribed another cathartic, and advised an injection. He died about 2, P. M.

The next case (April 2d, 1824,) was a negro woman, aged about 40. On inquiry, I understood that a splinter had pierced the sole of the foot a fortnight since, and that it had been suffered to remain some time before it was extracted; that for the last three or four days she had been affected with spasmodic tw tchings of the face, neck and throat; the abdomen also appeared to partake of the disease, having had no stool for several days; the pulse was weak, the tongue foul and slimy, yet she had no symptoms of fever. I sent her a powder prepared of ten grains of calomel and thirty of jalap, a large blister to be applied to the neck, and after the bowels were opened, I ordered 60 drops of laudanum to be given. April 3.—No operation by the bowels; the neck and throat appeared to be less affected with spasm, and she could swallow with greater facility; complains of pains in the thighs and knees; abdomen much swollen; pulse quick. I prescribed 1 1-2 oz. of terebinth, to be given immediately; I scarified the part where the splinter had been removed, and poured ol terebinth into the wound. The blister had risen well, and I recommended that one should be applied to the wound, and also to each thigh. I did not hear any thing of this patient for a week, and was then informed, that she lingered for a day or two and died. I was obliged to go part of the way on water to visit this woman, and as a boat was not sent for me, it was not in my power to give that attendance which the case required. Soon after this, I had an opportunity of perusing the several works of Baron Larrey, and was much gratified in observing several cases of traumatic tetanus, treated successfully by the actual cautery, as it occurred in the army of Napoleon when first consul, during his campaign in Egypt. I resolved to have recourse to the remedy the next case that should take place under my direction. 1825, June 26th.—I received a message to attend Aaron, a negro belonging to the late William Hort, Esq.; he had just been brought from St. Thomas' Parish. I was told, that about a month ago, a splinter had perforated his foot at that part where the joint of the great toe is con-

nected with the metatarsal bone, and that it had remained a week before it was removed. He then had spasms of the neck, and has had them, more or less, ever since; the spasms, now, were chiefly confined to the back and abdomen, exhibiting that variety of the disease termed opisthotonos; the flexibility of the body was so much impaired, that, on raising him up, it appeared as if all the joints were ankylosed, and that he was made of one solid portion like a board. There was no difficulty in swallowing; he was in a constant perspiration, but had no fever; the pulse was natural; his bowels had been confined since the 24th; cantharides had been introduced into the wound with a view of promoting suppuration, but no relief had been obtained. I immediately had a small bar of iron made red hot, and applied it to the wound, and some distance around it, so as to take up the circumference of a dollar. Previous to the application of the cautery, the spasms were very frequent, occurring every 2 or 3 minutes, but immediately afterwards, I observed a remarkable change, the paroxysms being less violent, and the intervals considerably greater. I directed ol terebinth 1 1-2 oz. to be given immediately, and two hours after ol ricini 1 oz. tinct. opii ol terebinth ââ qtt. lx. or each 60 drops. I received a note in the evening, informing me that the bowels still remained confined; that the castor oil, &c. could not be retained, having tried 2 doses. I prescribed calomel 12 gr. to be administered immediately, and a solution of sulphate of magnesia in mint water, to be given every two hours. 27th.—Has taken the medicine, but without any effect, the bowels being still confined, and the spasms continue. I recommended, that an injection of tobacco should be administered, 1 dr. to 1 lb. half to be used immediately, the remainder in 20 minutes, if no effect produced. On visiting him at noon, I found that the spasms still remained, but less in degree and frequency; has had no operation by the bowels; the abdomen hard and contracted, but no pain; pulse strong; some degree of thirst. I now thought proper to try the effects of venesection. I accordingly bled him to the extent of thirty ounces; the blood looked healthy and natural in appearance. I directed a blister to the abdomen; calomel 1 gr. pulverized jalap, 5 gr. every two hours, with a solution of salts, in infusion of seneca; to be given alternately. I saw him in the evening, and was told that two stools had been

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procured; the abdomen felt softer, and the spasms were very slight; the blister had risen well. I recommended a continuation of the medicine. 28th.—Had two stools during the night; no spasms; to give him salts in infusion of senna three times a day. 29th.—Bowels loose; continues free from spasms. From this time he recovered, although the sore produced by the cautery, was a long time in healing.

In a disease so generally fatal in its termination as that of tetanus, we may perhaps be allowed to form a theory or to reason *a priori* in regard to the state of system which predisposes towards it, especially, as it appears rather an error in modern practice, to attribute most diseases to a disordered state of vascular action. I believe, that nervous disease may take place independently of the vessels, although the reverse cannot so well be proved. It seems to be now pretty generally admitted, that there are two kinds of nerves, viz. nerves of sensation, and nerves of motion; but to what extent the one set of nerves can be disordered, independently of the other, remains to be determined. If we allow the brain to be an organ of secretion, as regards the nervous power, which is not improbable, much will depend upon its condition, and also upon the state of the nerves as the instruments. The latter, I am inclined to believe, are morbidly affected in tetanus; and, it would seem, that after the local effects are produced, the disease is propagated to the general system by sympathy. The spinal marrow has, of late, been supposed to be the seat of this disease; but further investigation is necessary before this can be fully ascertained. There is some analogy between the vascular and nervous systems in this respect, that as quickness or frequency of the pulse is not always indicative of the strength of the system, neither does preternatural nervous excitement betoken muscular power. Tetanus would, therefore, appear to be a disease of debility. In respect to the treatment of this disorder, it is usually so unsuccessful, that I consider we are justified in having recourse to any mode of cure, howsoever painful or even desperate, if there is a probability of its saving the life of the patient. The late Dr. Rush recommended stimulants, so as to induce an inflammatory diathesis; and there is much reason to believe, that there is a want of this principle in all cases of this disorder. I have observed, that wounds in this dis-

ease discharge a gleety matter, and are flabby in appearance, and seem to be destitute of that healthy phlegmonous inflammation necessary for the cure. I should, therefore, be disposed to carry the stimulating plan of treatment even to a greater extent than Rush, so as to induce inflammatory action; and if we can succeed in doing so, we might then proceed on the general principles recommended for the phlegmasiæ. Desault observes, that inflamed muscles are not prone to contract. I shall conclude what I have to state on this subject, by remarking, that the *ol terebinthinæ* appears to be a medicine exceedingly well adapted for this malady, it being an excellent anti-spasmodic, a powerful stimulant, and an active cathartic.

ARTICLE III.

CASE OF TETANUS. *By* THOMAS Y. SIMONS, *M. D. Port Physician,*
&c. &c.

THE following case of tetanus I am induced to give, proving the effect of stimulants in controlling this disease, as taken from my notes, believing it might prove interesting:

6th October, 1822.—I was called to see John, the property of Mr. A. Simons; he complained of great pain around the umbilicus, and a stiffness in his back and limbs; for which he could not account. I observed a rag upon his foot, and ascertained, that he had a week before ran into it a rusty nail; the wound was healed, but considerably inflamed. A deep crucial incision was made and the wound suffered to bleed freely; spirits of turpentine and laudanum combined, was poured in, and then a poultice with turpentine was ordered to the foot, to be changed three or four times during the day. He was then bled to about 16 oz. and a wine-glass of castor oil to be given every two hours, until a free operation was produced, assisted with injections, if necessary.

October 15th.—The medicine had operated well; the pain somewhat less; stiffness increased, and extended to the jaw; the

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wound of foot the same. Ordered a tea-spoonful of bark to a glass of wine every hour and a half; the bowels kept open by injections; the foot to be dressed as before.

October 16th.—No material change; had one or two passages by injections; the foot rather softer, but no suppuration. Ordered him to be supplied with gin-toddy during the day, so as to keep him in a state of relaxation; and at night, 50 drops of laudanum every half of an hour, until sleep was obtained; injections continued, and likewise injections of beef tea, wine and laudanum, two or three times during the day; foot dressed as usual.

October 17th.—Slept tolerably well; seems better; the jaw relaxed; the wound less irritable, and disposed to suppurate. The same practice was ordered, and continued, taking care myself to see the patient three or four times a day. He was kept excited and relaxed by the stimulus for four days, when all the bad symptoms subsided. He was then given gentle laxatives and nourishing diet, and his wound of foot, which had suppurated freely, dressed with simple dressings.

ARTICLE IV.

DESCRIPTION OF A CASE OF NEURALGIA CONGENITA. *In a letter from CHARLES ATKINS, M. D. to THOMAS Y. SIMONS, M. D.*

DEAR SIR—Believing that the case which I am now about to offer, is novel in its nature, I submit it to you for publication in your valuable Journal, should you deem it worthy of a place in its pages. I do not know that purposes of any utility can be served by its insertion; but, if so, I shall remain satisfied with the hands in which I have placed it, as best adapted to fulfil that object.

Martha, a mulatto girl, fourteen years of age, the property of Samuel R. Gillison, Esq. has, from her earliest infancy, been incapacitated from discharging the ordinary avocations of life, from a defect of intellect and want of control over the muscles of voli-

tion, arising from a state of constitution, which, her mother says, was brought on by the sight of a similar object in the latter months of her pregnancy with this child. Without stopping now to discuss a disputed point of physiological science, which I may subsequently take up, I shall proceed to call this case neuralgia congenita, and give its characteristic marks. Her countenance is rather pleasant than otherwise, with an unusual redness of the lips, but marked distinctly with an appearance of idiocy; she moves awkward in attempting to walk, and effects that motion with difficulty; her respiration is, for a short time, alternately easy and laborious, the latter strongly resembling a fit of convulsive asthma; the pulses are different, being so much fuller and stronger in the right arm, as to be easily perceptible to the most superficial observer; the external skin is always cold at all seasons, and in all temperatures, and appears to be preternaturally adherent; it is extremely sensitive, which is manifest by a marked dislike to shaking of hands, or being stroked on any part, particularly the neck and face; and to which she submits with repugnance; her appetite is always good, being almost ravenous; she cannot be understood in general, but makes herself mostly intelligible to those who attend her by signs; when words are proposed to her, or she is asked a question, she repeats the same in the manner of an echo. At times she is cheerful and lively, and again subject to great depression or melancholy; but this does not appear to depend upon any particular state of wind or weather. Harsh language immediately produces a melancholic effect. She sleeps but little, and does not appear, in this respect, to be regulated by the influence of day or night, but will set up and play in bed childishly for whole hours, while all around are asleep, and apparently regardless of their enjoyment. The extremities, in this girl, are of due length, but remarkably small and weak. She menstruated nearly twelve months since, and still continues to do so, at irregular periods, and in small quantities. When requested, or rather, ordered to dance, she rose and moved herself upwards and downwards by the flexors of the lower limbs, without attempting to lift her feet from the floor, which she evidently fears to do, from an apprehension of falling. I leave this case without com-

ment, persuaded, that to all who read the volume of nature, it cannot fail to be interesting.

ARTICLE V.

ON THE NATURAL HISTORY AND PROPAGATION OF THE *Bombyx Mori*, or Silk Worm. Read before the Charleston Medical Society of Emulation, by JACOB DE LA MOTTA, M. D. President of the Society, Corresponding Member of the Lycæum of Natural History, New-York, and Member of several learned Societies in the United States.

THE rapid march of intellect, through the mysterious and intricate works of nature; and the progressive improvement in the knowledge of all that can fill the mind with wonder and admiration on the great attributes of Deity, are conspicuously displayed *to him*, who seeks to know “by what he lives, and by what he dies.” The natural philosopher essays not in vain to define the cause of gravity, or the propulsion of bodies;—impelled by the example of an Archimedes, he perseveringly pursues the disclosure of the most irreconcilable facts. The mineralogist labours not ineffectually to ascertain the definite laws of crystalization;—the axioms of an Hauy are placed within his reach. The botanist no longer traverses the wide and interminable fields occupied by the vegetable kingdom; nor views in vain whole families of plants disarranged and disorganized;—he carries with him the sexual arrangement of Linnæus, and he is at once possessed of the means of describing and placing each order of plants in their appropriate sphere. The naturalist deriding the idea, that man was “ushered into existence, just to look about him and to die;” dives into the very *penetralia* of nature, and is ready to disclose her secret operations. He walks with the chemist, and aids in the analysis of the atmosphere that surrounds him;—he rambles with the ornithologist, and inquires into the economy of the feathered tribe;—he dives with the ichthiologist in the study of the habitudes and as-

sociations of the finny race;—he migrates with the zoologist, and learns by comparative anatomy, the organization and physiology of the inferior order of animals. But, he does more:—he pauses to contemplate the researches of the entomologist, and beholds with wonderment, the disposition and instinctive powers of this diminutive order of animals; he looks on their transformation; associates their changes to those in the superior order of beings, from adolescence to puberty and manhood; and indulges in the no less fanciful analogy, between the peculiar stages occurring during the period of existence allotted to mankind. But, he still does more:—he is hereby taught to meditate on the omniscience of Deity—on the multiplied and multifarious means he employs to meet the necessities, and satisfy the wants of man. That, while *he* commands the earth to yield sustenance to all, he ordains the insect to furnish the materials for raiment, which must be wrought by industry, that great supporter of animal, natural and vital functions; without which, the nobleness of man would degenerate into imbecility and inertness; and without the proper application of the product of the inferior, the superior creature would lose the sublime endowments of science and the arts.

These remarks are legitimately deduced from contemplating the means employed in rearing the silk-worm. The great value set on the product of the insect as a material in commerce, particularly in foreign countries—the importance of the article in political economy—and the attention of government being very lately directed to inquiries as to the best mode of raising the mulberry tree, and the propagation of the worm. With the intention of contributing to the common stock of information on a subject so interesting, the following observations and inquiries have been made; and I am not without hope, that the remarks embraced in this essay, will be received as emanating from a sincere desire of furthering the interest of this country, as well as advancing the cause of science.

It is intended to give something more than a mere statement of the mode adopted in rearing the mulberry tree and silk-worm. Inquiries have already been made, and experiment justifies the certainty of succeeding in this labour, almost throughout the whole

section of our country. We mean to touch on this subject as far as it relates to South-Carolina, and its agricultural interest. But, we propose, at the same time, to engage the mind with (after some remarks on the economy of the insect) an inquiry rather medical; to give an anatomical and physiological account of the animal, as in this particular contrariety of opinions have prevailed among naturalists. We shall thereby combine more than what merely relates to the propagation of the insect, and the application of its product to the arts.

We shall divide our subject into four distinct divisions.

1st. We shall speak of the mulberry tree, the chief support of the silk-worm, and the practicability of raising the plant for the most extensive purposes.

2ndly. We shall treat of the natural history of the insect, and of its peculiar organization.

3dly. We shall detail the rearing and management of the worm, including its habitude, and the manner the silk is formed.

4thly. We shall give a brief historical account of the employment of raw silk in manufactories, and of its first introduction in the arts.

The mode of preparing and wroughting the silk is excluded, as it belongs particularly to the artist, and is admirably well detailed in works treating amply on this subject.

FIRST DIVISION.—*On the Mulberry Tree.*

In the general arrangement which nature has pursued in the distribution of particular food for the sustenance of certain animals, she has maintained a uniform and regular system throughout, adapting to each individual of the animal kingdom, from the diminutive *ephemera*, to the stately and majestic *homo sapiens*, its appropriate nutriment. This is strikingly exemplified in the fact, that what is injurious to one order, is beneficial to another; what is poisonous and destructive in *one*, is inert and bland in another. Common observation brings the axiom still nearer to our view. Each plant seems destined to afford nourishment to insects of a particular family, and they flourish almost exclusively on those they are discovered to generate. The trite remark may be aptly referred to, that "on every vegetable may be found a different in-

sect." Those conversant with the cultivation of certain articles, whether for domestic or foreign use, can bear their attestation to the destructive power of those animals; that, multiplying in myriads, seek for support around them, to the complete destruction of the plants intended for useful purposes to man. The planter hears the name of *curculio** with something like a horrific sound, and dreads the fate of his flourishing *gossypæum*. He watches the inroads of the unfriendly visitors; but, alas! too often they elude his vigilance, and he beholds destruction surround him with the ravages of an Egyptian plague; and, with the devastating influence of the locust, all his previous prospects of a fine crop, are swept, in a short time, from the face of the earth.

It is well known, that the habitude of the silk worm disposes it to propagate and flourish wherever the mulberry tree is found. Whatever climate is adapted to its growth, there the insect may be reared; and as inductive to our subject, it may be remarked, that in almost every section of this continent this tree may be found. It is, by some botanists, considered indigenous to our soil. In our climate it is more luxuriant than in another; but may be cultivated with care for economical purposes in almost any.

According to botanical arrangement, the *mulberry* is attached to the class *monœcia*; order *triandria*, of the genus *morus*. The particular individual to which our attention is directed, is the *morus alba*, white or Persian mulberry. Our distinguished fellow-citizen, Mr. Stephen Elliott, in his judicious work on the plants of Carolina and Georgia, notices the specific character of this article thus: "*Morus Alba*, leaves deeply cordate, unequal at base, ovate and lobed; unequally serrate, nearly smooth; leaves undivided, shining; flowers monœcius. This tree, a native of China and Persia, is now entirely naturalized in this country. Around the plantations in the low country it occurs, I think, more frequently than our native species. It grows from twenty-five to thirty feet high, and sometimes two or three feet diameter. Its peculiar inhabitant, the silk-worm, thrives equally well. Flowers in March." It should be distinctly understood that, that species, the best adapted as nutriment for the worm, is the *morus alba*, or white mulber-

* A species of Caterpillar.

ry. It has been found, by the test of experiment, that the other species are either rejected by the larvæ, or when they are consumed, the colour and texture of the silk is very inferior. To establish, beyond the least doubt, that this particular plant is selected from among others, I give the words of the great Linnæus, laid down in his species plantarum: *Morus Alba*, native of China, cultivated in that country, as well as the warmer parts of Europe, for the sake of its leaves as the food of silk-worms. Miller, in his gardener's dictionary, speaking of this species, remarks, "that there are two or three varieties of it, which differ in the shape of their leaves, and in the size and colour of the fruit; but, as it is of no other use but for the leaves, the strongest shootings and the largest leaved should be preferred." In Rees' Cyclopædia, we find the following notice: "This sort is commonly cultivated for its leaves to feed silk-worms, in France, Italy, &c.; and in Spain, according to Mr. Townsend, they prefer the white mulberry, in Valencia, and the black in Granada." As a preference has been given by many to the red or black, it will not be irrelevant to state, from the same authority, that some have used the black, and select it from others: "The Persians generally make use of the latter; and Mr. Miller was assured by a gentleman, who had made trial of both sorts of leaves, that the worms fed with the latter (black) produced much the best silk; but that the leaves of the black should never be given to the worms after they have eaten for some time of the white, lest they should burst. And Sir George Staunton states, that the tender leaves growing on the young shoots of the black sort, are supposed in China to be the most succulent or juicy."

Method of culture. The following is taken from the same source, where particular directions will be found as to the cultivation of the tree:—"All the sorts (mulberry) are capable of being increased by seeds, layers, cuttings, grafting, and inoculating or budding. But the seed method is chiefly practised for those which are not intended as fruit trees, as they are very liable to vary in that way. It should be sown in the early spring, as about March, on a bed of fine earth, in a warm aspect, or upon a moderate hot bed protected with glasses, in drills to the depth of a quarter of an inch. Water should be given slightly in dry weather; and

in the heat of the day, shade, covering it in cold nights. When the plants appear, they should be well guarded from frost in the early spring, and be kept clean during the summer, and properly shaded and watered, protecting them the first autumn and winter, removing them in the following March, into nursery rows two feet apart, and one distant, to continue a few years, when they may be set out, where they are to grow. They should not be removed either from the seed bed or nursery rows, till perfectly strong. They appear, from Sir George Staunton's account, "to succeed best in China, on beds about a foot high, in moist loamy soils."

In our own climate, and as an object of agricultural interest, we do not hesitate to declare, that it is favourable to the cultivation of this species of mulberry, at all times. Throughout the city, the white mulberry may be found growing to a height in some gardens, many feet above what is usually described. As you advance in the interior of the country, the gigantic stature of this tree strikes the eye of the traveller; and it forms near dwellings, an umbrageous retreat. The least attention to a more extensive cultivation, would yield an abundance for supplying the most extensive establishment for rearing the silk worm; and from our peculiar location, it would soon be an object of profit to the planter, who could advantageously employ the little negroes in attending and feeding the animals, previous to their excreting the silk. A slight acquaintance with the economy of this insect, will convince, that the best method of managing them, would be in rooms well ventilated and surrounded by shelves or compartments, in which separate divisions could be constructed with blocks, card or paper, so as to accommodate, in a small compass, several thousand. Another advantage attends, their being accessible to the attendants, and the certainty of collecting the cocoons as soon as they are formed. More ample directions could be given, but it is deemed unnecessary, as any one can be satisfied as to the verity of these remarks, who will, as we have done, rear an hundred worms in a box placed in a sitting-room.

SECOND DIVISION.—*Natural History of the Insect.*

The *silk-worm* is a *bombyx* of the order of lepidopterous insects; specific character, *bombyx mori*. *Malpighi* has arranged it as

one of the subdivisions of the principal Linnæan genus, *phææna*. It may be said to belong to the moth tribe. The *larva*, or caterpillar, is of a long cylindrical form, geniculated, consisting of nine, some say eleven rings, each of these, subdivided into a great number of smaller ones; but this is erroneous, as the action of the great divisions produce a corrugation or puckering of the skin, which, when distended, is perfectly smooth; unlike some of the moths, it has a smooth skin, with pili or hairs on the legs. The East-India worm has annular series of spines or bristles, and the silk is said to be much stronger from this peculiarity. It has fourteen feet, and two at the extremity, which last are not very distinct. The six feet, situated on the three first annulations near the head, are hooked, and serve very useful and important purposes in the process of executing the silk. The others, towards the lower extremity of the body, are short, broader and very different in structure, covered with hairs, and at their bottom excavated, which adds very considerably in attaching themselves firmly to branches, or other objects in crawling. The head, which terminates the rings, and of a shell-like or hard substance, is furnished with two jaws, which, it is said, work and cut the food, not by a perpendicular, but a lateral action. The reverse of this appeared to us, as in the act of mastication they worked their heads perpendicularly, or from above downwards. They are capable of eating both on the flat part and edge of the leaf, but the latter is their usual mode. Their jaws are strong and of a horny substance, below which is discovered a small opening, through which the animal draws the silky threads, "of so much utility in its general economy."

Discrepant opinions arose among naturalists as to the particular organization of the silk-worm, and on the peculiar humour from which the silk is formed. Inquiries have been made into the probable manner the silk is produced, whether it is a peculiar secretion, or wrought from a part of the worm, previous to transformation by a process, or mechanical operation, *sui generis*.

Desirous of ascertaining the anatomical arrangement, and learning something of its physiology, as far as dissection and examination would afford, in the presence, and with the assistance of my friend Dr. Simons, a *larva* was selected just at the period it had

ceased to eat, and was about to wander for some convenient spot, to fix and wrought, or exclude its silk. On examination, we clearly perceived a fluid circulating in a vessel or canal that ran on the back in a longitudinal direction with its body, from the head to the extremity. The same dilatation and contraction, or systole and diastole, that is perceptible in an artery of the human system, was clearly discovered; and on making an incision with a lancet in the direction of the lower extremity, a yellowish fluid, which may be termed the blood, flowed out *per saltem*, and each jet was accompanied with a pulsitory action. It is said by Malpighi *de Bombyce*, that the heart of this creature reaches from the head to the tail, running the whole length of the body; and it is supposed by him to be a series of many hearts connected together in one, and it is, indeed, to use his words, "an elegant sight to observe the manner of the vital fluids passing from one of them to the other." Continuing our dissection, we traced the stomach by one continued canal, as long as what has been termed the heart, reaching from one end of the body to the other. This is the receptacle for the food, which was found distending this viscus, and of the colour of the green mulberry leaf.—The same author remarks, "the sudden passage of the food throughout the animal, are very good reasons for its great voracity."—This canal or stomach was encompassed by several bands or fibrillæ resembling nerves, and which we were induced to think as such, from the great irritability manifested on touching them, the animal still retaining its vitality, and which was accompanied with a contraction of the outer covering or membranous mass, which constitutes the muscular part of its body; the contractions of which, regulates the motions of its body, and corrugation of its skin. Other fibres, resembling fine thread, were found running in various directions, which may be pronounced fine tubes, that convey the peculiar glutinous substance to form the silk. Near the head, and situated in the upper part of the body, we discovered two bodies of a yellow transparent appearance, resembling amber, of a gummy or gumresinous property, about an inch and a half to two inches in length, thicker in the centre, and tapering to a point towards the mouth; to which we traced its exit, and on drawing it forward, displayed at once the silken texture. On close inspection we detected, that this

substance could be drawn out into that attenuated tissue resembling the silk, as the worm excludes it from its mouth. We satisfied ourselves, the silk was wrought from this substance, as its fibres could be separated in every direction; and, that this gumminess was essential to give not only strength to the silk, but enable the creature to fix it to any body it came in contact; by which means it encircled itself with an encasement for its future development into a butterfly. We were particular in this inquiry to satisfy ourselves, because it is advanced by Malpighi, that "in the sides of the belly, all about the ventricle, there is deposited a vast number of vessels, which contain a silky juice; these run with various windings and meanderings to the mouth, and are so disposed, that the creatures can discharge their contents at pleasure at the mouth; and, according to the nature of the juices that they are supplied with, furnish different sorts of silk from them; all the fluid contents of these vessels, hardening in the air into that sort of thread, of which we find the web or balls of this creature consist." With the greatest respect for such high authority, we must dissent from such opinion. We assert, that no such meanderings and windings of vessels were discovered as mentioned; that, there was no fluid contents that dried into the air; but, that the silk is formed by a peculiar secretion in the animal; and which, by the configuration of its mouth, it is capable of drawing out, or extricate from its body through the mouth, which it attaches to a particular spot; and by the direction it voluntary gives to its head and body, wire draws (if the expression be allowed) these yellow gummy substances, through a small orifice of the mouth, precisely in the same way as ductile bodies are drawn out for certain purposes. We hazard nothing in this conclusion.—If the opinion be erroneous, we shall be pleased, at any time, to be corrected by those who further the cause of natural history. It must not pass unnoticed, that from observation, we think, the aid of the six fore feet, which are somewhat clawed, is intended to enable the insect to separate the fibre or fibres of the silk in forming the net work of the cocoons, so that they do not adhere, but may be readily separated when worked off. The gumous part confines the silk only at points, and not throughout, as may be perceived in rolling

by the aid of hot water, that facilitates the operation by means unnecessary to mention.

In conducting this investigation, it is hoped that no pedantic disposition will be attributed to us—we would wish the statement could have been made more minute. Subjects of less importance have occupied the attention of great men; and it has been considered, the deeper we dive into the *arcana* of nature, the more do we advance in developing her secret operations. Before chemistry shed its light, that has disclosed to the astonishment of mind, the analysis of many substances, we were lost in the gloom of ignorance on many subjects, that now appropriated for useful purposes, obtains the admiration of the world. Let not such researches in the aspirant for knowledge be considered trifling. We have much to learn, and much more to unlearn.

We are now brought to the 3d *Division* of our subject—The propagation and management of the silk-worm.

The attention of government has been recently called to the subject of encouraging the rearing of the silk-worm; and as it is desirable to adopt the best mode, I shall present two different means, which may be denominated viviparous and oviparous. It is desirable to select that attended with the least trouble, and, at the same time, secure a large supply of the raw silk. I have selected the recommendation found in a work by *Pomet*, published during the time of Sir Hans Sloane. It will be seen, that the author speaks of a method differing from that of the oviparous process. I trust it will claim the attention of those who may be directed to this subject. “The silk-worm are little insects, whose origin is altogether surprising, as well as the various shapes and changes they undergo.” Several authors have writ on them, and amongst the rest Mr. Isnard, in a little treatise of his, at the 254th page, gives this account of their original: “At the time when the mulberry leaves are ready to gather, which should be five days after their budding in the beginning of the spring, they take a cow, which is almost at calving, and feed her wholly with mulberry leaves, without giving her any thing else to eat of herbs, hay, or the like, till she has calved, and this they continue for eight days longer; after which, they let the cow and calf both feed upon this some days together, without any other mixture, as before; they

kill the calf after it has been filled or satiated with the mulberry leaves and the cow's milk; then chop it to pieces to the very feet, and without throwing any thing away, put all together, the flesh, blood, bones, skin, and guts, into a wooden trough, and set it a top of the house in a granary, or garret, till it is corrupted, and from this will proceed little worms, which they lay in mulberry leaves, to raise them afterwards, just as they do those which are produced from the eggs; and these silk-worms are abundantly more fruitful than those from the eggs; so that those who deal considerably in them, never fail every ten or twelve years to raise them in this way." The above requires no comment. The management and breeding of these creatures are presented in a novel mode. Let it be tried, and experiment test its practicability. It is not unworthy notice. We shall now consider that system which is denominated oviperation.

The ova or egg, is generally lodged in some convenient and appropriate place, favourable for the future developement of the *larva*, grub or caterpillar. They remain from the time they are deposited, to the proper season for their evolution. I shall give a detailed account of the whole process, and the means adopted and pursued in the rearing these animals during the present spring. Close and minute observation throughout the whole process, and conducted in the parlour of my habitation, has enabled me to form a tolerable correct idea of some circumstances connected with their habits; and although conducted on a small scale, will show the practicability of devoting and disposing of a portion of time in the management of several thousands. This statement will, I trust, not be deemed prolix. Several minutiae were noticed, not solely on account of acquiring a correct knowledge of the economy of this animal, as adapted to the object of agricultural interest, but from the amusement and interest excited throughout the whole operation, which did not fail to impress the mind with the profundity of that matchless wisdom, that ordained every atom of his creation to subserve some useful purpose.

Having obtained at the north one hundred of the eggs, they were placed in a box. About the latter end of March, it was discovered that the little animals had burst their natural encasements, and were prepared to roam abroad in search of their *pabulum vi-*

tæ, by which they were to perpetuate an existence, which embraced those wonderful and interesting stages, that marked the duration of their term of life, till by an unerring law in their physiology, after having performed certain transformations, they were doomed to perpetuate their race, as from whence they sprang; which evolutions being regulated by the duration of season, limits the period of their existence. Alike other processes, reproduction marked the admirable arrangement which was to meet the exigencies of mutual dependence.

It being impracticable, at that time, to obtain white mulberry leaves, they were fed on young lettuce;—like the infant placed at the lacteal springs of its parent, they immediately attached themselves to the plant, and derived that support which manifested its adaptation to their wants, by a visible increase of size in forty-eight hours. Supplied with the mulberry, they soon rapidly grew, changing or shedding every ten days, more or less, their extensive covering or skin. It was remarkable, that at the time they were about to throw off this incrustation or outer coat, they ceased to eat, remained motionless for two days, raising at first their heads and bodies, forming nearly an acute angle, looked rather moribund, shrivelled, and of a dingy hue. At the moment they were about to throw off this incumbrance, a convulsive effort, attended with severe writhing and contortion of the body, and presently was perceived, an extrication by a gradual slipping from this encasement, as if the finger of a glove was drawn off, leaving the shell that covered their mouth. Immediately, efforts were made to throw this off, by a lateral motion made against some hard body, which rid them of something resembling a shell or horny substance. Thus disenthralled, they disclosed a delicacy of texture, a fine and beautiful display of structural arrangement. They roamed about in search of food, and soon resumed their mastication with an apparent appetite, indicating they had been in a state of starvation. Their manner of eating was conducted by a hurried motion of the head from above downwards, attended with some noise, although the motions of the jaw seemed lateral.

Continuing to consume their food, which was renewed to them fresh three times during the day, they gave the most visible evidence of a growth to maturity. It must here be remarked, that

the excrementitious matter passed in rapid succession, which corresponds with the structure of the stomach, as has been observed, being a continued canal; the nutritious and essential part of the food being separated and retained.

Attentive to their movements, which continued from four to five weeks, and which was dependant on the rapidity of growth, the interesting period arrived when they were to undergo a transformation of a more peculiar nature. The work of wroughting the delicate texture, the product of their labour, was about to commence, and with Argus eyes each movement was noticed, with scarce an aspiration, fearful of interrupting the industrious little being, in what seemed to be an instinctive principle.

Having ceased to eat, the *larvæ* or caterpillars were seen migrating from place to place, measuring with apparent mathematical precision, the altitude and depth—the elevations and depressions met with in their rout. With something like a geographical survey, they endeavoured to ascertain the latitude and longitude—the distance from one point to another; and by certain peculiar turns and elongations of the head, body and neck, endeavoured to fix upon some place that should afford them ample room to commence their work of spinning the silk—when one situation seemed unfavourable, they moved to another, until they determined on locating in the most favourable. Not until then did they cease their wanderings. If obstructed in their march, they evinced considerable irritability by a sudden, restive manner, and coiling of its body; and if it be not a stretch of the imagination, an angered gesture seemed to follow the efforts to arrest them in their progress to perform a destiny. As soon as they fixed on a proper site, they began the ejection from their mouths of an attenuated fibre, which was fixed on one spot, and which adhered by its glutinous nature. From this they commenced their steady and well regulated movements, which were all directed from place to place, from point to point, from circumference to centre. At one time, by a parallel, at another, by an angular direction of its web—at one movement by a semicircular, at another, by a reversed action, interlacing and entwining in every direction, keeping in regular movements a simultaneous action of the body with the working of the web, or outer covering of the cocoon or immediate envelope.

Thus progressing, in one day they formed their tissue, which seemed intended as a support to the *pupa* or chrysalis. Whilst they were engaged in thus forming the exterior covering, they suddenly ceased, and in a few minutes discharged a liquid substance resembling its blood, drawn from its heart or arteries. Divested of this fluid, they recommenced their labours, and on the second day, were completely enveloped in a *folliculus* or ball. On the third day they were quite hid, imperceptible to the closest inspection; and each succeeding day, added thickness and strength to this ball, which now constituted the *cocoon*, and which is the part containing the silk, wound off by a particular process. Here would end with the mere inquirer after the formation of the silk all further investigation, as it constitutes the essential part of the product of the animal; but as the naturalist seeks to trace the worm to its ultimate destination, I shall include in this detail some further particulars.

Placed in a convenient box which accommodated about fifty worms, I perceived every movement. Suffering many to remain stationary, at the expiration of twelve days a cocoon was opened, and the *aurelia* brought to view. I mean the worm in that state before its complete formation into a butterfly. The skin of the larva was also found in the same envelope. In twenty days, the *imago* or butterfly, roused from its chrysalis state, and brought to maturity, cut its way out of the folliculus, and disclosed a being in a different shape. Placed on paper, it was truly diverting to notice the playfulness of the male and female. If Darwin could speak of the loves of the plants, the entomologist could, with more certainty, describe the loves of insects. In about five days, they laid their *avalæ*. The period of existence seemed about to terminate. The time allotted by nature for growth and reproduction, had passed. The work had been performed, of laying the foundation for a numerous progeny; and not unlike the approach of old age, a change was produced that gave the worm a different aspect. The energies were exhausted. Attempts were made to move by flitting motions—each succeeding effort proved ineffectual. They became motionless, drooped, and yielded the vital spark—perhaps with a pang as great in sufferance, “as when a giant dies.”

FOURTH DIVISION.—*A brief Historical Account.*

It may be expected, as connected with the mode of obtaining the silk, that some observations should be made touching the manner recommended for winding off and manufacturing the raw silk. On this subject, the most satisfactory account may be derived from writers, who have given ample details of the whole process, and every thing connected with the preparation of the raw silk for economical purposes. Sufficient has been effected under my own eye, to hazard the opinion, that the rearing the silk-worm in our state, is very practicable, and unattended with the trouble and labour attributed by some. Near the mulberry groves, buildings should be erected, so as to make them answer for extensive employment. It must not escape attention, that the above statement is made to possess the inquirer of a knowledge of a few particulars, which, if unattended to, may retard the rearing, and is very essential to be known in the proper management of this animal through its different stages, that officious interference may not frustrate the object desired.

To trace the introduction of this article into manufactories, we must lead the mind to remote periods. The first notice we find, may be traced to the Isle of Cos; and we are told, that "Pamphila, the daughter of Platis, was honoured as the inventress." From that period it was soon known to the Romans, and silk was brought from Serica, the name it first bore, also the name of the place the worm is said to be a native. When it was first introduced, a great price was placed on its value; and it is related, that the "Emperor Aurelian refused his wife a suit of silk, which she solicited with much earnestness, merely on account of its dearness. Heliogabalus, perhaps the same who is said to have been the glutton, is reputed to have been the first person" who wore a holosericum or garment all of silk.

The Greeks under Alexander brought it from Persia into Greece—it was then manufactured in Berytus, Tyre and Phœnecia.

Two Monks, encouraged by the Emperor Justinian, brought great quantities of the silk worm from the Indies to Constantinople. On this manufactories were set up at Athens, Thebes and

Corinth. The Venetians, who commenced with the Greeks, supplied the western parts of Europe. In 1130, Roger, King of Sicily, established like manufactories in Palermo and Calabria; and from these it was obtained by the rest of Italy and Spain. In the time of Henry IV. a silk company was formed in England. Italy supplied her. The Moors introduced it into Granada, which was in a very flourishing state about the close of the fifteenth century. For many years, silk was very scarce in France. "Henry II. is said to have been the first who wore a pair of silk knit stockings." Henry IV. and his successors, encouraged the production of this article. We find, in 1629, 40,000 persons were employed in silk manufactories, so considerable was this article in demand. In England, the manufactory of silk kept pace with her other improvements in the arts. There was a period when English silk brought a greater price than the Italian.

At the present day, it constitutes a very great share of the exports of foreign countries; and the duties paid in this country on its importation is very considerable, such is the demand and consumption of silks of all descriptions. Silk has been raised in limited quantities in the United States. Considerable quantities were raised in Georgia, Pennsylvania and Connecticut. In 1810, the value of silk in that year was estimated at \$27,373.

With the extensive use of this article in this country, and its great demand, a spirit of inquiry has arisen as to the means and extent of raising mulberry trees, and breeding the silk-worms. Congress has directed the Secretary of the Treasury, to collect all the information that may throw further light on the subject, and make a report at the next session. May the inquiry and its ultimate operation be crowned with success. In this wish, I am governed only by what should influence every American—the gratification derivable from seeing this country equal all Europe—in *the arts*, as well as in science.

ARTICLE VI.

REVIEW.—*Lectures of Sir A. COOPER, Bart. F. R. S. Surgeon to the King, &c. &c. on the principles and practice of Surgery, with Notes and Cases. By FRED. TYRREL, Esq. Surgeon to St. Thomas' and the London Ophthalmic Infirmary, octavo, 2 volumes.*

It is truly gratifying, after turning over the pages of prolix, inexperienced and unsatisfactory writers, to read the valuable lectures of Sir A. Cooper. A surgeon of an acute and discriminating mind, he has drawn his instruction from his observations on nature, uninfluenced by preconceived opinions and theories—he preferred the laws of nature, to the artificial and often arbitrary rules of the schoolmen. Whatever, therefore, emanates from him, we may be certain, is practical and of consequence instructive.

We see no effort, in any of the works of this eminent surgeon, at literary ornament. His subject is practical, and he shows his good taste in adapting his style to his subject. We have often heard it objected to Sir A. Cooper, that his style is bad. In our opinion, he is one of the best surgical writers of any age—for, according to one of the fundamental principles of good writing, he suits his style to his subject. His subject being practical, he conveys his opinions in a plain, clear and succinct manner, regarding all opinions of no avail, if they cannot stand the rigid rule of experience; and this is one of the points which give so much value to our author's productions.

It would be a work of supererogation, however, to say any thing more regarding a surgeon, whose fame has extended over every civilized portion of the globe. We will rather attempt to give an analytic review of the first volume, and extract those parts which we conceive are most interesting and valuable.

These lectures were published by Mr. Tyrrel, the former pupil of Sir Astley Cooper; and Mr. T. has published a letter of Sir A. which acknowledges the accuracy and correctness of the lectures.

The first volume, which we propose to consider, embraces twelve lectures, viz. Lecture 1. On irritation. 2. On inflamma-

tion. 3. Treatment of inflammation. 4. On adhesive inflammation. 5. On suppuration. 6. On ulceration. 7. On granulation. 8. On ulcers. 9. On gangrene. 10. On injuries of the head. 11. On compression. 12. On wounds of the brain.

1st. On irritation.—The definition which he gives of this (like all definitions) is rather defective. He says, “it is an altered action, excited in the body by an unnatural impression.” In the paragraph preceding this, he says, (after speaking of the effect of the healthy actions which are carried on by sympathy,) “but sympathetic effects also follow injuries and diseases, and become the causes of restoration on the one hand, or of destruction on the other; and this state of the body is called irritation.” To understand him properly, we prefer giving his own illustration of his definition.

“Irritation of sensation.—Irritation sometimes produces only diseased sensations; thus a sympathetic pain is experienced in the knee and foot from diseased hip; when a person has a stone in his urinary bladder, acute pain is felt at the extremity of the penis; the passage of an urinary calculus through the ureter, occasions retraction of the testicles and pain in the thigh; a diseased prostrate gland produces pain in the inner part of the thighs; disease of the uterus occasions pain in the loins, and around the hips, and sometimes weakness of the inferior extremities, amounting nearly to a state of paralysis; pain and heat in the throat arise from a morbid state of the pylorus; itching in the nose from worms in the intestinal canal; pain between the shoulders from affection of the liver; and pain in the loins from inflammation of the testicles.

“Diseased action produced by irritation.—But by irritation, not only diseased sensations, but morbid actions are excited in other parts, which are near and intimately connected, or in distant parts; thus inflammation is produced in the testicle from irritation in the urethra. Swellings in the breast are frequent consequences of morbid change of the functions of the uterus; the diaphragm is frequently thrown into convulsive action, from gangrene of the most remote parts, producing hiccough: retention of urine I have known more than once occur after the operation for

politeal aneurism. But there is no organ more frequently affected by irritation than the stomach. For instance, a blow is received on the head, occasioning injury to the brain; vomiting is one of the first and most constant symptoms; and by this we are led to detect such injuries. Vomiting is produced when the testicles are injured; when the intestines are burst, wounded, or strangulated, and from a gall-stone passing the biliary duct: injury to the iris frequently occasions vomiting; and an obtuse pain, in almost any part of the body, will occasion sickness."

"The degree of constitutional irritation, resulting from injury, depends upon many causes." These are the importance of the parts injured: "The extent of injury," "The nature of the injury," "The difficulty of restoration," and lastly, "The state of the constitution." It is this latter which gives the varying aspect to disease, and which sets at defiance any fixed and undeviating rules. It is this which makes the experience of physicians appear so contradictory, and has led to so many errors, as well as discrepancies in practice and opinion. In proportion to the degree of irritation, will be the extent of danger from any injury. On this we shall copy our author's practical remarks.

"Excessive irritation frequently follows operations on very young subjects, but rarely those performed on very old persons. I have known children, after having undergone the operation of lithotomy at a very early period, die of convulsions. I should not, therefore, recommend the operation to be performed on a child under the age of two years. I have, however, operated successfully for lithotomy, at the age of one year and nine months, but am disposed to recommend its postponement when possible. In infancy the irritability is excessive, and the system is easily excited to destruction: after the period of two years, the irritability is considerable, but the powers of restoration are great. In middle age, the irritability is less, and the restorative power still considerable: in age the irritability is much diminished, but the powers of restoration are less also. Persons who are deprived of their natural rest, and take little food, suffer more from injuries, than those who sleep their due proportion; and the temperate

man often suffers but little from an injury, which will produce most distressing constitutional symptoms in an intemperate person."

In confirmation of this several cases are mentioned thus: "Dr. Ludlow, of Calne, pricked his hand with a thorn in shooting, and died of tetanus in a few days. I was called to see a young gentleman who had been thrown into a hedge, by which his hand was lacerated; in seven days he had symptoms of tetanus, and on the ninth day he died." A man of intemperate habits was bled by Mr. Saunders, and afterwards indulged in the excesses of the table; a violent inflammation of the arm supervened, which terminated in gangrene and death. There are several cases of this kind on record; and they should be borne in mind, as arising from the state of constitution, and from the want of skill in the surgeon, to which the public are too apt to ascribe it. A case is mentioned, of a splinter running in the nail producing no immediate injury, terminating ultimately in death; and another, where the elbow was completely crushed, without producing any untoward circumstances. These facts are familiar to every physician of observation; and we, who practice in a warm climate, are sensibly alive to the dreadful consequences, which not unfrequently supervene upon slight injuries. Our author states, that serious injuries from cuts from dissections, occur more frequently in the latter part of the season, when the system has become irritable from exposure to a foul and unhealthy atmosphere, than in the commencement; and persons from a warm climate, are much more affected than those from a cold, in consequence of their increased irritability.

Of the treatment of irritation, our author makes the following remarks:

"Means.—There are two means of reducing irritation.

"Restoring the secretions.—First, by restoring the secretions of the different organs, and, by thus opening the outlets, lessen fever. A man who has his skin hot and dry, feeling excessively heated, if you can produce a free perspiration, will be immediately relieved and become cool. When the irritation is severe, you must not limit your medicine to act on any particular organ, but

try to restore all the secretions; and this is best effected by administering mercurials to act on the liver, aperients on the intestines, diuretics on the kidneys, and antimonials on the skin.

“Lessening the irritability.”—The second mode of relieving irritation, is by allaying the excitement of the nervous system; this can be effected by giving opium and antimony combined; or calomel, antimony, and opium, to act on the skin or liver, as well as the nervous system: the latter is one of the best medicines for allaying irritation, and may be given to adults in doses of two grains of calomel, two of antimonial powder, and one grain of opium: to this you may add saline medicines, for they promote the secretions and lessen the irritability of the nervous system. *Liquor ammoniæ acetatis* with *tinctura opii*, and the common saline with opium, soothe the system into peace. The alkalies, as potash and soda, diminish the irritable actions of organs, as may be seen in irritable bladder. *Hyoscyamus* and *conium* are also excellent remedies, especially in those persons with whom opium disagrees.

“Bleeding.”—The abstraction of blood lessens the momentum of the circulation, and prevents the danger of congestion in any of the vital organs; but it must be taken away with the greatest care, not to diminish too much the powers of the constitution. A man was taken into Guy’s Hospital, having a concussion on the brain: the dresser, who admitted him, was a great admirer of venesection, and consequently bled the patient frequently, and in large quantities; in ten days the man died. On examining the head after death, a very slight laceration of the brain was discovered, but no attempt at restoration: the continued abstraction of blood had deprived nature of her restorative powers. In compound fractures it is extremely dangerous to bleed largely; as, by lessening the power of the constitution too much, there is not sufficient energy to perform the task of reparation.

“If an important disease exist, nature will not always have power to perform the necessary duty of restoration. A man was admitted into St. Thomas’ Hospital, under Mr. Cline, for a simple fracture of the *os humeri*; the fracture did not unite, and scarcely any inflammation arose; on the twenty-ninth day the man died suddenly. Upon dissection an aneurism was found in his

aorta, which had burst: very little, if any change, had taken place in the fractured part.

"Treatment of chronic irritation.—When there is a chronic irritation, you can only restore the system to healthy action by slowly acting on the secretions; to produce these diseases, some slow feverish action has existed, and some one of the secretions has been lessened; the skin is dry, or the bowels are costive; the bile is not properly secreted, or the urine is less abundant; hence the blood is locked in the system, and congestion, followed by inflammation, produces local diseases. The pil. hydrarg. submur comp. is the best remedy under these circumstances, as it increases the secretions of the liver, intestines, kidneys and skin. The blue pill, or calomel, should be followed by an aperient in the morning, as they act on the liver, but not in proportion on the other secretions. To attempt to cure such diseases suddenly, or by violent and active means, must be ever improper; a chronic treatment is required, and by slow degrees only can you restore the body to a healthy state. Let me repeat, *all the secretions must be restored, as this is the grand principle in the cure of disease.*"

He concludes this lecture with examples of the effect of the mind upon disease—a fact too frequently neglected both by friends and physician. The following cases will act as an admonition to those, who correct their children by exciting terror, or practise the habit of frightening children as sport.

"Case.—A child, for some trifling offence, was put, by its schoolmistress, into a dark cellar: the child was dreadfully frightened at the idea of being put there, and cried violently during the hour that it was confined. When she returned to her parents in the evening, she burst into tears, and begged that she might not be put into the cellar; the parents thought this extremely odd, and assured her that there was no danger of their being guilty of so great an act of cruelty; but it was difficult to pacify her, and when put to bed she passed a restless night. On the following day she had fever, during which she frequently exclaimed, 'Do not put me in the cellar.' The fourth day after, she was brought

to my house in Broad-street, in a high state of fever, with delirium, frequently muttering, 'Pray do not put me into the cellar!' and when I inquired the reason, I found that the parents had learnt the punishment to which she had been subjected. I ordered what I conceived likely to relieve the fever, but the child died in a week after this unfeeling conduct.

"The following is also a curious example, given in the words of a child, aged ten years: 'I wanted to write my exercise, and to scrape my slate pencil, and went into the school in the dark to fetch my knife; when one of my school-fellows burst from behind the door, to frighten me. I was exceedingly terrified, and it made my head ache. On the following day I became deaf; and, on the next, so deaf as not to hear the loudest talking.'

"In this state she continued in June, 1824, three months after having been frightened; at which time I saw her. She had been previously under the care of Mr. Hodgson, of Birmingham."

We shall pass over his lecture on inflammation, and present our readers with the following remarks on bleeding, in the 3d lecture, on the treatment of inflammation; as there are so many advocates for bleeding in this country, who use this powerful means in almost every disease:

"*Bleeding.*—The most powerful constitutional means of relieving inflammation is, by the abstraction of blood. Its beneficial effects principally result from its producing a diminution of nervous power; and that it does so, is proved by the syncope which it occasions. Sometimes the removal of a very small quantity of blood, will occasion not only suspension of all the voluntary functions, but of the mental powers.

"*Its modus operandi.*—Fainting, however, cannot be easily produced, unless the patient be in the erect or sitting position whilst the blood is abstracted; for it is the loss of this fluid by the vessels of the brain, which is the immediate cause of fainting. To prove this, when a person faints, place him in a recumbent position, and let his head be situated a little lower than his body, to facilitate the passage of the blood to the brain, and in a very short

time after being thus placed, he will open his eyes, and all his faculties return.

“The second mode by which bleeding relieves, is by lessening the momentum of the circulation; for when there is great distension of the blood vessels, the momentum will be necessarily great, and consequently the vital fluid will be thrown with great force, not only on the inflamed part, but on all the organs of the body.

“*Indication for bleeding.*—The indication for general bleeding is a hard pulse. In this state of pulse the diameter of the vessel is diminished; yet its action is exceedingly strong, and each pulsation feels like the vibration of a wire; therefore, when you find this description of pulse, you will be justified in taking away blood. The hardest pulse is that which is produced by inflammation of the heart; in inflammation of the lungs and of the brain the pulse is hard, but not equally so with that which arises from inflammation of the heart.

“When the stomach or intestines are inflamed, the pulse is hard, but is often so small as to be scarcely distinguishable. Persons unacquainted with this fact are afraid to take away blood, although it is imperiously required, on account of the paleness, depression of strength, and smallness of pulse; as, for instance, in strangulated hernia. This observation also applies to peritoneal inflammation.

“Quickness of pulse is not in itself a sufficient proof, that bleeding is required; but when united with hardness, no additional evidence of its necessity can be wanted; therefore, do not bleed when there is a quick pulse, unless, at the same time, it is hard; for a quick pulse is in itself a proof of irritability, which bleeding will increase.

“The indication for a repetition of bleeding is said to be a buffy state of the blood; but your decision must not be governed by this appearance alone, for you must still have regard to the pulse.

“When blood is cupped or hollowed upon its surface, it is said to be a proof of inflammation, and that bleeding should be repeated; but the following case will show, that even a cupped state of the blood, and buff conjoined with it, are not sufficient evidence that venesection may be repeated. A patient in Guy’s Hospital, in the last stage of scurvy, whose blood-vessels were so weak, that

a slight pressure on the skin produced ecchymosis, whose gums frequently bled, and whose pulse was exceedingly quick and feeble, had a very small quantity of blood taken from his arm as an experiment; after standing for a few hours, it became not only buffy, but considerably cupped. I had this blood preserved, on account of the commonly supposed inflamed appearance; but the blood will be buffy, and lose its red particles, in coagulating, from quickness of action only; when you contemplate a repetition of blood-letting, it may be of importance to keep this observation in your remembrance. If the quantity of serum be very large, unless there are other indications for bleeding, this circumstance is an evidence against the repetition of blood-letting.

"Quantity taken away.—The quantity of blood usually taken away at one time in inflammation, in an adult, may be from ten to twenty ounces; but must vary with the degree of inflammation, the importance of the organ inflamed, and the state of the constitution.

"When compared with the solids, the quantity of blood which can be drawn from an animal, before it dies, is about one part to sixteen. A small dog, weighing fourteen pounds, had its jugular vein opened; from this eleven ounces were discharged when the dog fainted: the carotid artery was then divided, and from this source three ounces more were obtained, and no more could be drawn. Thus, fourteen ounces of blood were removed from a dog weighing fourteen pounds; so that one ounce of blood to one pound of solids, was the proportion drawn.

"Mode of bleeding.—When you bleed to relieve inflammation, the blood should be abstracted as rapidly as possible; therefore, the orifice made into the vessel should be of considerable size; for if allowed to flow slowly, the vessels have time to accommodate themselves to the diminished volume of circulating fluid; so that the system feels but little the gradual abstraction of blood. The grand object is, to produce a tendency to fainting, and in some cases complete syncope; to effect which blood must be suddenly withdrawn. But in very delicate persons, the loss of a small quantity of blood will subdue the inflammation: a gentleman who has been for many years subject to inflammation in his lungs, is usually relieved by the loss of six or eight ounces of blood.

*“Case.—*You may bleed, so as to produce constitutional and local effects at the same time. A patient of Mr. Foster’s, in Guy’s Hospital, who had concussion of the brain, suffered afterwards continued pain in his head, and had considerable constitutional irritation; blood was abstracted from the external jugular vein, and immediately the pain in the head ceased, and did not afterwards return.

“When you are required to take charge of patients suffering from an injury, which demands a length of time for its restoration, you must be exceedingly careful how you take away blood from the system generally, but must in preference adopt local bleeding: for if, as I have observed, you adopt a system of free depletion, nature will not be equal to the restoration of the injured parts, and the most disastrous consequences follow the indiscriminate employment of blood-letting. There is not a greater error than this in the practice of surgery.”

In speaking of cold as a remedy in inflammation, Sir A. cautions us to beware how we apply the Goulard’s extract, or acetum plumbi, to inflamed parts, as he has known paralysis supervene; and he condemns strongly the application of ice, as, he says, gangrene is very apt to be produced. This must depend much upon the nature of the inflammation. In the inflammatory stages of our fevers, the most beneficial results have followed the use of ice and ardent spirits combined, spunged over the body until a natural temperature is produced on the surface. Sir A. Cooper, considers a proportion of one ounce of rectified spirits of wine, and five ounces of water, the most valuable application he knows of for inflamed surfaces.

We are pleased to see the cold bath recommended by so high an authority. It is a source of regret, that this powerful remedy, so important and valuable in many of our diseases, should be so much neglected. As far as our limited experience extends, we have found it an important adjuvant in controlling the bilious and yellow fevers. We have applied it, however, always, when there was a strong re-action in the system—when the pulse was high and quick, and the skin hot and dry. The effect has always been, to produce copious perspiration, and frequently a solution of the

fever. We shall, however, present the short notice of our author on this remedy, previously reminding our readers of the works of Currie and Jackson on this remedy, which seem to have, of late, escaped the practitioner's attention.

*“Effects of the cold bath.—*The experiment I have related led me to an examination of the principles of the action of cold bath; and I found, that when a person in health takes a cold bath, not being accustomed to it, it produces irritation, and sometimes renders the pulse irregular: but on the contrary, when a person in a state of irritability and weakness, with a feeling of heat about him, goes into a cold bath, it tranquillizes the nervous system, and therefore is beneficial. It absorbs the superfluous heat, lessens nervous irritability, and reduces the pulse, when quickened, nearly to its natural standard.

“I had injured my health by being too much in the dissecting room, and I discharged a considerable quantity of blood from my stomach, and fever was the consequence. In this condition I went into the country for the benefit of a pure atmosphere; and I there had frequent opportunity of noticing the influence of cold on an irritable pulse, in my own person: before a fire my pulse would be at 120 deg.; but on going into the cold air, it sank in a short time to 100 deg.; and, by a longer continuance in the cold, it became still less frequent. When my pulse was quick and irritable, and my skin was heated, if I used a cold bath in the morning, on that day my pulse was slower, and the superfluous heat was removed; so that the body was much cooler than in the preceding day, or on the succeeding day, when the bath was not used. Thus, where there is great irritability of the nervous system, and where the heat is sending the blood with accelerated motion through the different channels, cold will prove invigorating, by lessening the first of these affections, and reducing the latter to the natural standard.

“The manner, therefore, in which cold relieves inflammation, when locally applied, is by abstracting heat, by lessening the diameters of the vessels, and by diminishing nervous irritability.”

We shall pass over lecture IVth, on adhesive inflammation, and present the following familiar, yet useful admonitory opinions in the lecture on suppuration, regarding the checking of long continued suppuration:

*"Caution in stopping long-continued suppuration.—*When sores have long existed, some caution is necessary in healing them; nature appears to produce a quantity of blood equal to the discharge which they have supported, and to continue to do so after it has ceased. Inflammation of the lungs and apoplectic seizures, will sometimes follow their sudden cicatrization. This may be prevented by great attention to the secretions, by giving frequently calomel at night, and an aperient in the morning; or by occasionally taking away blood, when the above symptoms intervene. The surgeons of former times made issues, or setons, with the same view; but they are now very much discontinued, because by such attention as I have advised, their use is superceded. But still it cannot be denied, that a sore will sometimes relieve symptoms of diseased lungs, and even of determination to the brain, independent of any direct counter irritation upon the affected part.

*"Case.—*Mr. Wilson, formerly lecturer on anatomy in Windmill street, informed me, when he was a young man, that he had hæmoptoe and other symptoms of pulmonary disease; that an ulcer formed upon his arm, by which the symptoms were relieved; that he was anxious to heal the sore, and the symptoms returned upon its cicatrization; that the discharge was reproduced, and the pulmonary symptoms were again relieved.

"The suppression of discharges from the ear, is attended with great danger of producing matter on the brain.

*"Cases.—*Dr. Meyer and myself attended, in Austin Friars, a gentleman who died with hemiplegia, and apoplectic symptoms, from the sudden suppression of matter in the ear. I opened this gentleman, and found matter on the cerebellum opposite the labyrinth of the ear.

"Dr. Babington and myself attended a gentleman in Cheapside, in whom I also found matter upon the surface of the brain, from an arrest of secretion of matter from his ear. We also at-

tended together, in St. Paul's Churchyard, a similar case, in which matter was found between the dura mater and surface of the brain.

"Dr. Cholmely examined a woman in Guy's Hospital, who died from a similar disease. I can call to mind eight cases of inflammation of the brain, produced by suppression of suppuration of the ear."

In the 6th lecture on ulceration, he remarks while speaking of abscesses, that in opening large abscesses, after evacuating the purulent matter, we should compress the wound, and endeavour, in this manner, to bring on adhesive inflammation; and in another part of this lecture, Sir A. denies, that the irritation produced in opening abscesses, arises from the stimulus of the air received, a doctrine maintained by some; but by the increased action of the vessels, in the work of reproduction, a doctrine much more philosophical, and we conceive, approximating nearer the truth.

We quote the following plan of treatment of chronic abscesses, as it comes from a man, whose experience in this disease (so often perplexing to the private practitioner,) has been immense, and must therefore be considered not only valuable, but the most successful:

"Treatment of chronic abscesses.—The treatment of chronic abscess is very different from the acute. In the last case, you wish to diminish the state of excitement in the constitution; and, in the former, you do all you can to give it additional powers, by allowing a generous diet, and giving the ammonia and bark: the ammonia is the medicine on which the principal reliance is to be placed. You know, that of late bark has not been much used; but we are apt to run into extremes:—bark assists the suppurative process, and a generous diet must be allowed, in order to increase the action of the parts, by giving tone to the constitution. Stimulant poultices should be applied, and the best I know is the muriate of soda (common salt) and water; a table spoonful of the salt to a pint of water, and the poultice should be wetted with this. Yeast and oat-meal, vinegar and flour, each of these expedite the process of suppuration. In indolent cases, it is customary to ap-

ply stimulant plasters; and the best is the empl. galb. comp.; it is stimulating, and consequently excites the action of the part; the emplast. ammon. cum hydrarg. and the emplast. thuris comp. are also used. The latter is more tranquillizing, and in general excites slight perspiration over the part; similar in its operation to the soap cerate, which is also of use. These, then, are the remedies, local and constitutional, to be used in chronic abscesses; but it remains to be considered, how chronic abscesses are treated when it is necessary to open them. Suppose you are called to a case where there is a collection of matter under the fascia lata of the thigh (the largest abscess in the body,) extending, as it often does, from above the knee to the trochanter major, what would you do? Certainly it is to be opened—make an incision, half an inch in length, and discharge all the matter you can. Having done this, apply a roller, to cover the thigh, with the exception of the opening; the result of this is, in many instances, that adhesive inflammation is excited, and the sides of the cavities often readily unite; always taking care, in the application of the pressure, to leave the mouth of the wound uncompressed. The same directions are to be attended to in collections of matter, which are to be met with under the tendinous expansion, which covers the muscles of the leg and forearm; the object is, to endeavour to produce the adhesive inflammation, as in the case of abscess in the liver, that I stated to you, from which the matter was evacuated by the puncture of a lancet, and afterwards by pressure; the adhesive inflammation was produced, and the recovery of the patient was effected. This, then, is to be your practice—to endeavour to procure an union of the sides of the cavity by the adhesive process.”

Our author proceeds to animadvert upon the carelessness of surgeons in opening abscesses in exposed parts of females, such as the neck and face, thereby leaving unsightly scars. This, although apparently trivial, is certainly, as he justly remarks, of great importance; for a scar upon the neck or face of a female, has not unfrequently prevented her marriage, especially in England, where scrofula is so prevalent, and is considered so odious and disgusting.

The plan he practises is, to use a fine instrument, and make as small an orifice as possible, and then squeeze out all the purulent matter; for, says he, "If this be not attended to, they will, at last, slough; but if on the contrary, you carefully avoid leaving any of that unorganized substance, adhesion will take place, and the wound will heal. Almost every thing in these cases, depends on getting rid of the solid matter." Further on he remarks, "There is a point of great importance to be attended to, that is, the direction in which you make the opening; always make it transversely, and not in the axis of the neck; for, when the wound heals, it will be scarcely seen among the creases or folds of the skin. One more observation on this subject. Let me entreat you not to open these tumours when they have a purple blush upon them, like the hue of a grape; the skin is thin and will slough; and if you then open it, you will bring discredit on yourself." In a preceding part of this lecture, we omitted to mention, that he advises a tumour to be opened when there is a slight blush upon the surface.

We must pass over the lecture on granulation, although an interesting one, and come to the more important one of ulcers, because the practical experience of Sir A. will be of immense value to the private, and especially the country practitioner; and we know of no disease more troublesome, and so liable to affect the reputation of surgeons, as the treatment of ulcers.

The plan of procedure in healthy ulcers, is the application of poultices to promote granulation, and then the pressure of adhesive plasters to control and regulate them.

The obstructions to the progress of healthy granulation, are, first, their too rapid or luxuriant growth. After remarking, that the lint should, in such cases, be placed on the centre of the ulcer, and the edges touched with caustic, he remarks upon the use of adhesive plasters,

"Adhesive plaster is also used to press down the granulations. The common adhesive plaster is, however, too stimulating for this purpose; a plaster composed of equal parts of the *emplastrum thursi compositum* and the *emplastrum saponis*, is a much better plaster to promote the healing of ulcers, than the common adhesive plaster. This is a point deserving attention; because, if the

application is of so stimulating a nature as to excite inflammation, and excoriate the skin, we are often under the necessity of abandoning its use. It sometimes happens, that the action is so great as to oblige us to apply a sheet of lead to the surface of the sore; when this is necessary, you may apply, first, a piece of lint covered with the ceratum cetacei, over this a piece of sheet lead, which should be confined by a roller. These are the various modes of treatment in this state of the sore."

The next difficulty in the treatment of ulcers is, granulations being too languid. In such cases, stimulating applications must be used to arouse vascular action; for this purpose, he recommends among others, the unguen. hydrarg. nitrico oxidi. "This," says he, "is a strong stimulating application, which occasions a determination of blood to the part, and produces a florid redness in the granulations, instead of the semi-transparent appearance which they assume in the languid state of the sore. It produces, however, a white appearance in the edge of the sore, arising from the thickened state of the cuticle, which prevents the growth of the granulations on the edge. This may be corrected by the application of the unguentum hydrargyri fortius to the edge of the ulcer.

"Lotions are frequently applied with the view of stimulating these languid sores; such as the sulphate of zinc, in the proportion of two grains to one ounce of water; or the sulphate of copper in the proportion of one grain to an ounce. The oxymuriate of mercury and the liquor calcis are also used, for the same purpose, in the proportion of one grain to an ounce. In addition to these applications, it will be necessary to bind up the sore with a roller, and to allow the patient to take exercise, to produce action, and to excite a healing disposition in the sore.

"It will be highly useful, in these cases, to employ some stimulating plaster, such as emplastrum galbani compositum, for the adhesive plaster will not answer the purpose, when sores are languid, and the object is to increase the action in the part: this will also be greatly assisted, by giving the patient a nutritious diet, allowing him, at the same time, to take exercise; and, in fact, doing every thing to improve the constitution."

The inflamed ulcer.—In these cases, poultices and fomentations are recommended, and a recumbent posture, together with active purging. Sir A. considers calomel and the compound extract of colocynth, at night, and an infusion of senna and sulphate of magnesia in the morning the best. Although we conceive that any cathartics, which act well and agree with the patient, will accomplish the same ends.

In gangrenous ulcers—Sir A. C. says, “The best application to produce a slight stimulus, and check gangrene, is the nitric acid; there is none equal to this: fifty drops of it to a quart of distilled water, will be found a most useful remedy; the acid may be increased to a drachm; this may be done or not, as it gives pain; but generally the average strength is fifty drops. I have seen, in a short time after this application, a quick separation of the parts from sloughing, to which there is always a tendency; and healthy granulations spring up, being, as the chemists would call them, highly oxygenated. The granulations are of a beautiful florid red.

“Oiled silk should be applied to the wound, to prevent evaporation, and preserve the moisture of the linen for many hours. An advantage, though a slight one, compared with the others, in the use of the nitric acid, is, that the offensive smell is nearly removed by it. Another very good application to sores of this kind is nitre, in the proportion of one drachm to a pint of water; this agrees very well with the sore, and has the same effect with the nitric acid, though in a diminished degree. Sulphuric acid is of use also in these cases, six drops of the acid to four ounces of water; the muriatic acid has not the same effect as the other mineral acids. If nitric acid be applied to the wound, the granulations will assume a red and healthy look; if the sulphuric, they will have nearly the same appearance; but if the muriatic acid be put to the wound, it will have a comparatively slight effect on the granulations, and, therefore, it is an inferior remedy in the treatment of ulcers. Port wine, porter, dregs of beer, and yeast, made into a poultice, are also useful.

“You must have recourse to a great variety of applications; for after you have tried one, which at the beginning was useful, you will, from the wound becoming accustomed to its stimulus, be obliged to change it for another. There is, at this time, a girl in

the other hospital, with sloughing of the pudendum; a variety of means have been used, each of which, at the outset, relieved her a little, but did not continue to do her good for any length of time, and she will, most probably, in the end, fall a victim to the disease. It is, upon this account, that I mention so many remedies. The carrot poultice is also a very good application. The constitution of the patient must be attended to, or the local means will do very little; therefore, local applications must be aided by constitutional remedies, and the best medicine that you can administer, is opium with ammonia—twenty drops of tincture of opium three times a day, with ten grains of the carbonate of ammonia in an ounce and a half of camphor mixture, and a little of the compound tincture of cardamon.

“This is the medicine which will agree best with the patient; he must be well nourished, or, at least, he must have as much as his digestive powers will bear; port-wine also must be given, and spirits may be allowed to those who have been addicted to their use. By brandy and opium I have seen these sores cured; in fact, they are our sheet anchors in the treatment of these ulcers. But I shall have to speak of this again in the lecture on gangrene.”

The most powerful application which we have ever witnessed in such ulcers, is the pyroligneous acid diluted, according to the irritation excited, and applied to the part on lint four or five times a day. We have seen, in the midst of summer, when the thermometer is raging from 80 to 90 degrees, the foulest gangrenous ulcers checked in forty hours.*

Irritable ulcer.—In the treatment of this species of ulcer, the following recipe is recommended, to be spread on lint, and applied twice a day: R. ung. cetacei. ung. hydrarg. mit. áá 1-2 dr. pulv. opii. 1 dr. M. fiat unguentum. In a note, we presume by Mr. Tyrrel, the following is recommended in preference to the ointment: R. liquor. calcis 1 lb. extract opii 1 dr. mucilag. acaciæ 2 oz. M. fiat lot. Lint is to be dipped in this and applied over the sore, and then a silk oil cloth placed over the lint.

* See a case in No. 1, old series of this journal, by the Editor.

The constitutional remedy recommended, is one grain of opium to one and a half grain of calomel, night and morning, to be suspended when ptyalism is produced. This Sir A. conceives a valuable remedy in inflammations.

We shall pass over his remarks upon other ulcers, and present the following:

“Menstrual ulcer.”—The next ulcer that I shall describe is the *menstrual*; I mean by this a sore which, once in three weeks or a month, secretes a bloody fluid. This complaint is connected with amenorrhœa. In visiting the hospitals, you must have observed that females on one day have their sores healthy, and probably on the next day they are covered with blood—in fact, the menstrual ulcer is a very common occurrence. You must apply to these sores liq. calcis and calomel; give the patient the mist. ferri cum myrrhâ and pil. hydr. submur. comp. an ounce and a half of the former, twice or three times a day, and five grains of the latter every night at bed time. These medicines will generally succeed in improving the state of the constitution, by restoring the defective secretions.

“Ulcers from varicose veins.”—The next ulcers which I shall explain to you are *the varicose*, from varicose veins; and I shall be particular in my description, as the subject is one of importance. The veins, in different parts of the body, often become varicose; but those of the lower extremities by far the most frequently so. This condition of the vessels arises from extreme distension, so that their sides are separated, and their valves are incapable of approximating: the blood pressing in one uninterrupted column, the veins become distended and serpentine, and the valves widely separated from each other; the heart and arteries, by their powerful attempts to return the blood, soon excite inflammation, and ulceration supervenes. The most common effect produced is, desquamation of the cuticle, the whole surface of the skin covering the diseased veins is formed into a crust, and under this a quantity of serum is secreted. The first thing to be attended to in these cases is the recumbent posture: in fact, this position is indispensable; you can do nothing without it. Lint, wetted by the black mercurial wash, should be laid on the ulcers,

oil silk over these, and the limb should be well and regularly bandaged, beginning at the foot. The pressure allows the valves to recover their lost action, and consequently it will be found to be highly useful. Another great benefit is derived in these cases from opening the veins; indeed, they are so distended, that they may more properly be termed lakes than rivulets. If you do not open the vessels, you will find considerable difficulty in the progress of the cure. The best plan that you can adopt is, to puncture them by means of a lancet, twice in the week, as long as you think they require it; let the bandage be afterwards applied, and the parts kept wet by means of evaporating lotion. No danger whatever attends the opening of these veins, and very great relief will be afforded by it. If the punctures, however, at any time should not unite, but fret into ulcers, you must apply to them liq. calcis and calomel. It often happens that persons, who, for a length of time, have had the veins of their lower extremities in a varicose state, will find a great quantity of blood in their shoe; the crust, before alluded to, coming off, is the cause of hæmorrhage, by opening the vein. Upon being called to a patient so situated, you may put him in the recumbent posture, apply a bandage, wet the part constantly with spirit of wine and cold water, and you will prevent any future bleeding.

“Pregnancy is a frequent cause of varicose veins, and so is obesity.

“It was formerly the practice, when the veins were in a varicose state, to tie and divide them. This plan is still pursued by many surgeons; but it is one that I have deprecated in my lectures in this theatre for this last eight or nine years; it is very injudicious, and fraught with great danger; therefore, let me exhort you never to adopt it. I have seen this operation prove fatal in several instances in these hospitals; therefore I was induced to say, that it must not be performed. A gentleman at Nottingham informed me, that he had tied the vena saphena, for a varicose state of the veins of the leg of a young farmer, in other respects healthy, and the operation proved fatal. The same lamentable catastrophe occurred to a most respectable practitioner at Brentford; and this gentleman told me, that he would not again perform the operation for the world. If I were to tell you all the cases in

which I have known it terminate fatally, I should recount at least eight. Another overwhelming objection to the operation is, that when it does not prove fatal, its ultimate effects are useless. If I were asked which of the following operations I would rather have performed upon myself, viz. the saphena major vein, or the femoral artery, tied, I certainly should choose the latter. When an artery is tied, the inflammation is confined to the neighbourhood of the ligature; but in a vein it is very extensive, the vessel becomes exceedingly distended, the inflammation uncommonly severe, and either extensive suppuration or mortification ensues, and death is the result."

We conclude our observations on this lecture, with the remarks on *noli me tangere*. "There is," says Sir A. "an ulcer often existing on the face, called *noli me tangere*. This disease has never been correctly described; the truth is, that it is an ulceration of the glands, or follicles of the nose, those small cavities from which you can squeeze sebaceous matter; the ulceration extending deeply, at last, even the cartilages of the nose become destroyed. The plan of treatment to be pursued in this case, is as follows; you must prepare an ointment according to the following prescription:—R. arsenic oxyd. sulphur flor áá 1 dr. ung. cetacei 1 oz. M. fiat unguentum. Apply some of this ointment on lint to the ulcer, and leave it there for twenty-four hours; and then remove it, a slough will separate: dress the ulcer with some simple ointment, or a poultice, and in a short time it will generally heal. If the ulcer is not deep, you may cure this complaint without using the arsenical preparation, by painting the surface of the sore daily with a solution of the nitrate of silver.

"You must be cautious, however, in your manner of using this application. A gentleman once came to me with an ulcer of the kind of which I am speaking, and which I painted in the manner described with a camel's hair brush. In the course of the day, when at Lloyd's, he was asked by some friends what was the matter with his nose, for they told him it was quite black; and, in fact, it was so. I was not aware, at the time, that a solution of the nitrate of silver would have produced that effect; and I merely mention the circumstance, that you may be on your guard.

The nitric acid is a good application, diluted according to the irritability of the part, and the liq. calcis hydrarg. oxymuriat. produces a good effect.

“Deep ulcers, having a malignant aspect, often remain in the face of old persons, without destroying life, although, from their appearance, they portend the most direful effects. To such sores, the best application is the arsenical ointment.”

Our limits compel us to pass over his observations on gangrene, and we shall notice his ideas on carbuncle.

“*Symptoms of carbuncle.*—When carbuncle is about to be formed in any part, it is generally preceded by pain, by a swelling of considerable extent and hardness; this is occasioned by the adhesive inflammation; the surface of the tumour next assumes a livid redness and a spongy feel; little ulcers now form in the skin, which, from their number, give it a sieve-like appearance, so numerous are the orifices; from these a white discharge passes—this fluid resembles water and flour mixed together; and he who has seen much of the carbuncle, knows the nature of the disease instantly upon seeing these orifices, and the kind of discharge which issues from them. When the little openings are all formed into one, the dead cellular membrane becomes exposed, and begins to separate, having been previously confined by the smallness of the apertures. In gangrene of the extremities, there is not this mechanical obstruction to the sloughing of the dead part. And though gangrene is generally difficult of cure, yet carbuncle usually does well, except when situated on the head or neck. Though persons recover from carbuncles of an enormous size upon the back, yet very small ones on the head or neck will often destroy; indeed I never saw a patient who recovered from any considerable carbuncle upon the head; in these cases, there is effusion upon the brain, producing compression. The inflammation which attends fistula in ano, will sometimes destroy the cellular membrane of the neighbouring parts, thereby occasioning an enormous quantity of the nates to slough, and yet the patient recovers.

“*Treatment of carbuncle.*—The peculiar treatment of carbuncle consists in making upon the surface of the swelling, at an early

period of the disease, a large crucial incision, for the purpose of affording the dead parts an opportunity of escaping; then apply the port wine poultice, and give the patient such stimulants as will tend to increase the vigour of his constitution; and here we shall again find opium and ammonia our most propitious remedies."

Upon erysipelas, in the same lecture, we see nothing very important. He tells us, that in the first instance, the liver and chylipoietic viscera, generally, must be restored by small doses of calomel. He says, that the tonic and antiphlogistic plan have both proved successful. When we were in London, it was *fashionable*, in some of the hospitals, to give large doses of bark. The treatment of this, as well as all other diseases, must be regulated by the habit and constitution of the patient. We have seen the ung. hydrarg. in one or two instances topically applied with much benefit, as well as the aqua calcis and ol. oliv. mixed, and smeared over the inflamed surface with a feather.

Having extracted as much as our limits would admit of the preceding lectures, we come now to a most interesting and important subject, viz. the injuries of the head—the treatment of which is liable to great abuse, and the phenomena connected with which involve some important medico legal inquiries. Whatever is said on this subject, by a man of the experience and eminence of our author, must be entitled to great respect and consideration.

Sir Astley Cooper divides injuries of the head into concussion and compression; and first, concussion. The following are the symptoms:

"Symptoms of concussion.—When you approach the bedside of the patient who has a concussion of the brain, you will find him in what you would suppose a sweetly tranquil sleep: his breathing is easy, and not quicker or slower than natural: his pulse is beating with steadiness, and with its usual velocity, and you would be disposed to say, do not disturb him, but let him sleep on. But if you attempt to rouse him, he is with difficulty excited; if he be spoken to, he mutters, and returns an incoherent answer, and you then discover that he is comatose. Upon inquiry

it is found, that he has received a severe blow upon his head, that immediately after he was senseless, and unable to stand, and that he had since vomited. At first a torpor exists in the intestinal canal, and considerable difficulty in procuring an evacuation, but afterwards the fæces are involuntarily discharged: in a few hours the bladder is distended, from the accumulation of urine, which demands the introduction of a catheter for its removal; but after some time the urine also passes involuntarily."

Sir A. mentions one or two cases, where foreigners under concussion forget the English language, and speak only their native language. We have seen this several times in the delirium arising from yellow fever. The effects of concussion, according to the parts injured, are paralysis partial or complete, or derangement of some of the operations of the mind. We copy the following as highly interesting:

"I have known concussion arise from the general shake of the body, unaccompanied by any blow upon the cranium; pain in the head succeed, with the usual symptoms of concussion, and the patient's life be greatly endangered.

"*Dissection.*—With respect to the state of the brain under concussion, when the injury has not been excessively severe, it seems that the symptoms are merely the effect of a disturbance of the natural course of the blood through the brain. A fit of vomiting, by forcing the blood through the brain, will sometimes almost immediately restore the functions of the mind and body. It seldom happens, that this state of the brain destroys; but when it does, nothing is found upon the examination which will account for the symptoms. It is, therefore, an alteration of function, but not a disorganization.

"*Laceration.*—But when the concussion is very violent, it is attended with lesion of the brain. We have a number of preparations before us, showing this state of the brain, in which you will see lacerations of it accompanied with slight extravasation.

"The first example of this which I witnessed, was in a patient of Mr. Chandler's, in this hospital.

“Case.—John Stam was admitted into St. Thomas' Hospital, Saturday, Feb. 15, 1793. By the overturning of a cart he had received a wound in the arm, and had some symptoms which led the surgeon to think him intoxicated. On visiting him a few hours afterwards, he seemed to be perfectly sensible, but had lost his speech. There did not appear to be any injury of the head, on an attentive examination, yet by signs he led us to think this the injured part: his pulse was full and quick. He was bled and purged, and on the following morning his pulse was smaller; he had slept soundly, and seemed to be much disposed to sleep. On the following day he continued pretty well, taking plenty of nourishment. On the 18th, in the evening, he had a sudden change for the worse; his features altered, his mouth was drawn a good deal to the side; he had difficulty in swallowing, and his urine and his fæces passed off involuntarily. He continued thus until the morning of the 20th, when all his bad symptoms left him, excepting the loss of speech. He remained free from any other symptoms for many days (excepting hiccough,) but then his appetite began to fail him, and he became emaciated. He had, about a fortnight after his admission, a return of the difficulty of deglutition, and the urine and fæces again passed off involuntarily. He had now every evening at nine o'clock a delirium come on, which rendered it necessary to strap him to his bed, as he struggled violently. On the 8th of March he died, just three weeks after his admission. The wound in his arm discharged but little the first two days, but afterwards it wore a bad aspect. He had enjoyed a good state of health previously.

“Dissection.—On examining the head, the scalp and cranium were found free from injury. The dura mater also appeared healthy. On the pia mater there was some slight effusion of a transparent serum; on cutting away the hemisphere to show the centrum ovale, the brain was found lacerated. The colour of the medullary substance, as well as the cortical, was changed to red in many places, and the size of the laceration was about two inches long, by an inch wide. The substance was very soft, and it appeared ragged. There was a small quantity of purulent matter found in some places. Ulceration seemed to be present, as there

were a number of small holes in the brain surrounding the laceration.

“Case.—Another very extensive case of laceration occurred in the person of a friend of Lord Nelson’s. Mr. Coppendale, 27th June, 1805, fell from his horse in the borough, and was brought to Guy’s Hospital. He had a wound on the back of his head, which bled freely. He was totally insensible; the pupils were dilated; the pulse 60, and regular. He was bled from the arm to a considerable extent before he could swallow, and an enema was administered.

“On the second day he was insensible, his pupils were contracted, and remained so in the dark or light. On the third day he gave signs of returning reason: swallowed freely, and could be roused to answer a question. He performed all the animal functions, and asked for the means of doing so. He knew several of his friends. His pulse still at 60. He said he was very well, and wished to rise; but frequently complained of his head. On the fourth day favourable symptoms began to vanish; he became more sleepy, and more difficult to rouse; and when Lady Hamilton called upon him, he could not be made to open his eyes, or speak to her. From this day the torpor increased; he passed his stools and urine in bed; his eyes became nearly insensible to light, though one of his pupils was still contracted, and the other remained to the last moment of his life dilated and immoveable. He slept almost constantly, though with frequent intervals of restlessness. He had no convulsive motions, excepting a slight sub-sultus tendinum, a few hours before his death. His heat remained natural, until thirty-six hours before he died, when it was irregular and unequal; the face, by turns, red and pallid; the legs, one warm, the other cold; forty hours before his death the pulse began to flag, but quickened on the least motion; at one time it was 70, and in ten minutes after 120; a few hours before death it was constantly quick, to 150, and sometimes higher; the breathing only thirty times in the minute.

“The treatment pursued was bleeding, blisters to the neck, and sinapisms to the feet.

“Dissection.—Extravasation on the scalp, some blood on the dura mater and brain, and some from the lateral sinus of the dura

mater, which had been torn. Brain torn in five different places, two in the anterior, three in the middle lobes.

"Skull fractured at the basis, through the meatus auditorius; petrous portions of the temporal bones and sella tursica.

"The following is also an interesting case:

"*Case.*—A waiter at a coffee-house in the Strand, who had been previously subject to epileptic fits, was ordered to clean the windows of the first floor of the house; and whilst in the act of doing so, and standing on the outside of the window, he was supposed to have been seized with a fit, and fell into the area beneath. On being taken up, a wound was found in his forehead, and he had lost both sensation and volition. Having resided in the borough, he was carried to Guy's Hospital; and when admitted there, a fracture was discovered in the os frontis, but without any depression of the bone; and as he had no symptoms of compression, the operation of trephining was not performed. On the following day to that of his admission he died, without having, in any degree, recovered from the accident.

"When the head was examined, the fracture was found confined to the upper part of the os frontis; and opposite to the fracture on one of the anterior lobes of the cerebrum, a considerable laceration was discovered. On the falx major was situated a large patch of earthy matter, evidently of long standing, which had probably been the cause of his epileptic fits.

"If, then, it be asked, in what does concussion consist? the answer is, that if it be slight, it is merely a disturbance of the circulation in the brain; if violent, the brain is lacerated. A knowledge of this leads to a judicious treatment of the injury, as laceration of the brain is frequently followed by extravasation: and concussion in the commencement, may be compression in its result."

In the treatment, our author strenuously opposes the use of the trephine. He maintains, that it is never performed with any advantage; and he cites several cases of its failure. This opinion is opposed to that of Mr. Pott, and the surgeons who succeeded him.

"Forty years ago, trephining used to be the plan generally adopted with the patients admitted into the London Hospitals; many were submitted to the operation; inflammation of the membranes of the brain supervened, and nearly all died; recovery being very rare. But do our patients now die from the effects of concussion? No; by depletion we rarely lose a patient.

"After the expiration of my apprenticeship at these hospitals, I went over to Paris, to see the practice of Desault, at the Hotel de Dieu; and I found that scarcely ever, under any circumstances, did he trephine; and he was more successful than the English surgeons. Trephining in concussion is now completely abandoned."

He recommends bleeding, with a caution however, to wait until a re-action is produced, and to be careful not to bleed too much, as by so doing, too much blood will be abstracted from the brain, and prevent the reproductive process.

The purges which he recommends are sub. mur. hyd. succeeded by senna and epsom salts, blisters to the head, &c. &c. Emetics are likewise recommended in cases, however, only of slight concussion.*

* The following case our readers will pardon our intruding upon them. A gentleman, an officer of the Navy, was struck down in a fracas which had taken place in the streets. During the night he vomitted dark bile, and felt excruciating pain in the head. Early in the morning, when he was first seen, he was still vomiting, his head was very painful, and he felt a swimming and tingling sensation; his pulse was strong, full and slow; his complexion became very bilious, but his mind was rational, and he gave a very correct statement of the transaction of the night. He was bled, and then given a good dose of sulphate of zinc, which made him vomit. He afterwards took an active purge of cream of tartar and jalap, which did not act well, evincing a torpor of the bowels. He, the second day, was still rational, but complained of giddiness and acute pain in the head, and took an unaccountable aversion to bleeding, which all our persuasions could not control, although he had been frequently bled; and before the injury, was rather too partial to this remedy. He was, however, bled by stealth, from which he felt some relief. His bowels were then kept open with brisk cathartics. This plan was pursued until the night of the fourth after the injury, when he was seized with every symptom of phrenitis. The pain came in paroxysms, when his screams could be

Before concluding our remarks on this lecture, we copy the following, which we wish professional teachers and writers would attend to more frequently:

"In these lectures, gentlemen, I feel it to be my duty to describe to you surgery as it is, and not in the glowing colours in which it is painted to you in books. I am most anxious that you should omit nothing which may contribute to increase your professional skill, and enable you to afford the greatest possible degree of relief to the sufferings of humanity; but those who blazon forth our profession, as one which is attended with undeviating success, are only deceiving you. You must hear the untoward cases of your profession, as well as those of which the issue is favourable, in order to form a correct judgment in your minds, of what surgery really is. It is for these reasons that I shall never hesitate, "*coute qui coute*," to detail to you, and perhaps to the public, those cases which have terminated unfavourably. I have a duty to perform, and I shall never shrink from the discharge of it. It is by detailing to you the unfavourable as well as the favourable cases, that I can alone perform that duty; for it is by such a course alone that I can point out to you, the rocks which you are to avoid, as well as the haven in which you are to endeavour to anchor."

We come now to the 11th lecture on compression of the brain. "When," says Sir A. "a patient has a loss of sensation and vo-

heard at an immense distance. A blister was applied to the back of his neck, but his system was in such an irritable condition, that we were compelled to withdraw it, as he declared it would destroy him. In this condition a barber was sent for, who shaved his head; 20 leeches were then applied to the part where the blow was struck, and afterwards cloths wrung out of brandy, and ice combined, were constantly applied to his head; by these means, all the violent symptoms subsided. He was then given ten grains of calomel every two hours, and a brisk purgation was kept up until he recovered. Whenever this gentleman is bilious, he feels a pain on the part where the blow was inflicted, which is relieved by active purging. The calomel, in this case, appeared to produce a happy revulsion from the brain, by exciting the chylopoietic viscera, and especially the liver—the determination of the circulation from which to the brain, is well known to be very frequent.

luntary motion, an apoplectic stertor, slow labouring pulse, and one or both pupils dilated, it will generally be found, that the brain is compressed."

Compression may be produced from extravasation of blood from ruptured vessels, from the formation of matter on the fracture of a bone with depression. A rupture of blood vessels, may be produced from very slight causes, especially in drunkards, whose vessels of the brain, from their constant stimulus and distension, are found generally weak. We mention this, to show that death may be produced in such cases from slight causes; and in a drunken riot, those in company with the deceased, may be accused of wilfully and intentionally committing murder.

It would be useless to cite the cases mentioned by our author, as they explain nothing new. He, in such cases, considers the proper treatment to be active purges and brisk cathartics, and the trephine must be the dernier resort, except there be fracture with depression. The principle laid down by Mr. Pott is, that by using the trephine, we give an outlet for the extravasated blood, which acts as a foreign substance upon the brain, thereby keeping up constant irritation. In cases of supposed compression, without fracture, the objection to this practice is the uncertainty of fixing on the proper spot, or of finding any extravasation at all. In cases of fracture without depression, this would not be the case. We will not, however, presume to decide when two such eminent surgeons differ, but proceed to give his directions for the treatment of cases of fractures of the skull.

"The treatment of fractures of the skull is as follows: when there is fracture, unaccompanied with symptoms of injured brain, you will not trephine; but you must, by the application of adhesive plaster, endeavour to heal the wound in the scalp as quickly as possible. Let your constitutional treatment be that of depletion, by means of blood letting and purgatives. This plan removes symptoms of concussion and even extravasation, which accompany these fractures; and often a few hours will show you, that the application of the trephine, which you, at first, might have thought indispensable, is rendered unnecessary. It is wrong, therefore, to decide hastily in these accidents; for irreparable mis-

chief might arise from your making an incision, and converting a fracture, which was simple, into one that is compound. Wait, then, for a time, before you operate in such cases, for the purpose of seeing what effects may be produced by bleeding and purgatives. It not unfrequently happens, in these hospitals, upon persons being brought in, who have received injuries of the head, that the dresser in attendance will bleed them immediately after their admission, and send for the surgeon; before whose arrival, the good effects of the loss of blood are apparent, and the symptoms of concussion, and even of extravasation, have lessened, so as to lead to a different view of the case. This shows how necessary it is, that you should not be precipitate. If you act prudently, therefore, in these accidents, you will try bleeding and purgatives before you operate; and the depletion will prove of the greatest possible advantage in preventing inflammation: from which arises a principal danger."

Again. "The old practice used to be, the moment an injury to the brain was suspected, and the least depression of the bone appeared, to make an incision into the scalp. This is putting the patient to considerable hazard; for the simple fracture would, by the incision, be rendered compound. In simple fracture, then, when it is attended with symptoms of injury to the brain, deplete before you trephine; and when it is unattended with such symptoms, though there may be depression, deplete merely, and do not divide the scalp, unless the symptoms have not yielded to depletion. If the fracture be compound, the treatment must be very different; because a compound fracture is followed very generally by inflammation of the brain; and it will be of little use to trephine, when inflammation is once produced. It might be thought that it would be time enough to perform this operation when inflammation had appeared; but this is not the case; for if the inflammation comes on, the patient will generally die whether you trephine or not; and you will not arrest its fatal progress by trephining, but the operation will add to the danger of increasing the inflammation. When inflammation of the dura mater and membranes of the brain has been excited by the depression of the bone, you scarcely retard the progress to death by performing the operation. These principles may be illustrated by many cases. In

this hospital I saw two instances: one in a patient of Mr. Cline, and another in a patient of Mr. Birch. Mr. Cline's patient was a man who had compound fracture from a blow on the head. A portion of bone had been depressed, and Mr. Cline advised him to submit to the operation of trephining. The man said, 'You may do what you like; I am no judge, but you are; so do what you please with me.' Accordingly, he walked into the operating theatre to be trephined; the portion of bone was removed; he walked back again to bed, and never had a bad symptom. A short time after, a patient under Mr. Birch, with fracture and depression, was told that he was in a similar danger, and advised to undergo the same operation. He was, however, self-willed, and obstinately refused to submit to the operation. Several days after the accident he was seized with pain in the head, and symptoms of inflammation in the brain; and when he became insensible, the operation of trephining was performed; but it did not arrest the symptoms, and he died of the inflammation. In Guy's Hospital, two boys were admitted under very similar circumstances. The os frontis had, in one case, been broken by a kick from a horse, and in the other by a fall on the forehead. In one case the portion of bone was raised, and the boy did well: but the mother of the other boy interfered to prevent the operation of trephining; and though it was performed after symptoms of inflammation had appeared, he died. It is true, it happens, that fracture with depression is sometimes not followed by inflammation, even when the fracture is compound; but we cannot be certain of this; and if it ensue, we cannot save the patient by trephining at a late period. The rule, therefore, which I always follow, is this: When I am called to a compound fracture, with depression, which is exposed to view, whether symptoms of injured brain exist or not, I generally use an elevator, and very rarely the trephine. I put this instrument under the bone, raise it, and if it has been comminuted, remove the small portions of bone. The elevation of the bone is not followed by any mischief; but if you do not raise it, and inflammation follows, it will be too late to attempt to save the life of the patient."

In the last lecture on wounds of the brain, several interesting cases are mentioned, where, in consequence of fractures of the cranium, a quantity of brain has been taken away, and the patient has recovered. It is astonishing what extensive lesions, in some cases, take place in some portions of the brain, without producing any important effect upon the mind; while, in others, the slightest injuries produce fatal consequences. In cases of injuries of the brain, "It occasionally happens," says Sir A. "when a portion of brain has been lost, that a piece of the cranium will, by being driven in, occupy its place; and if, in these cases, no symptoms of compression manifest themselves, you must not elevate the depressed bone; for where you do so, you would, in all probability, give rise to extravasation, or increase the hazard of inflammation. The late Mr. Chandler had a patient in this hospital, who, on receiving a blow from a boat hook upon the parietal bone, had a portion of that bone driven into the brain, and, at the same time, a quantity of the brain was lost; at first there was hemiplegia. The depressed bone was permitted to remain, and the individual recovered."

The danger of wounded brain arises from inflammation and fungus. Of the treatment of the first, we have elsewhere given our author's opinion; of the latter, he recommends, that a piece of lint, wetted with liquor calcis, be applied to the protuding brain, and an adhesive strap placed over this. This is to be done every day, until the brain sinks down upon a level with the internal surface of the bone, when the scalp must be allowed to heal over.

In this lecture, after giving cases of injured brain, and the treatment and dissections, the particulars of which our limits will not permit us to notice, he concludes with describing the best method of operating with the trephine, (an operation well understood, and well described by other authors, and, therefore, presenting nothing novel;) and some remarks on wounds of the scalp, which our author says, is not "devoid of danger, and instances of which he has known to destroy life." As a general rule, however, simple injuries of the scalp, are seldom attended with serious consequences; and the fatal cases seen by our author, must have been produced by some peculiarity of constitution.

We have thus endeavoured to give an outline of volume 1st of this interesting and valuable work; and have, as far as our limits

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We have thus endeavoured to give an outline of volume 1st of this interesting and valuable work; and have, as far as our limits

would permit, extracted what we conceived most interesting and instructive. Our readers, from what we have extracted, will be enabled to judge for themselves regarding the work. We most earnestly wish, that every American Surgeon would supply himself with these lectures, for no one can read them without receiving great satisfaction and instruction. The style is plain and colloquial; the best, as we think, for lectures on a practical subject like surgery. There are one or two little evidences of bad taste, which we could have wished omitted, as they possess neither the salt of wit or solidity of instruction; and, however, they may have been tolerated in a lecture room, are unbecoming in a great work from so great a man.

Mr. Tyrrel, the editor, is, however, to blame, for suffering these little abortive attempts at wit to appear in a great work of a great man, and evinces one thing pretty clearly, that whatever may be his acquirements as a surgeon, of which we (and the world we believe) know very little, he possesses not much literary taste or judgment.

This work is re-published in America, by Wells & Lilly, Boston, and A. Sherman, Philadelphia. The latter is the cheapest edition, and equally as good, if not better.

ARTICLE VII.

HISTORY OF A CHILD BORN DEAF AND DUMB,

Who was cured of her infirmity at the age of nine years. Described by M. MAGENDIE, and translated from his Journal for this Journal.

IN the month of May, 1824, M. Deleau, Doctor of Medicine, informed the academy, that he had succeeded in imparting the faculty of hearing to a child of the name of Honor Trezel, aged nine years, residing at Paris. The success was complete; the child, who, previous to the operation, was completely deaf, was even rendered sensible of all kinds of noise, and enabled to comprehend certain intonations of the voice. But having acquired the faculty

of understanding sounds, the dumb are still far from enjoying the complete power of hearing noises of different kinds. The words which are addressed to them, those which they attempt to repeat, &c. are to them a new source of sensation, by which they are delighted, but from which they derive no other utility: they are ignorant of the advantages of speech, and but little suspect, that the rare and vague sounds which are the occasional productions of their vocal organs, may, at some time, serve to express their wants and ideas.

Sad experience hath, moreover, shown that, if we abandon a dumb person in this situation, in the midst of his family, his senses and intellect remain in a condition but little superior to that, in which he was found previous to his cure.

Having imparted the faculty of hearing to Honor Trezel, it remained for M. Deleau to attend to her education, and supply, by attentions appropriate to the novel situation in which she found herself, that assistance which her infirmity precluded her receiving during her early infancy.

It was the more important to make this trial, as none of the dumb, who had had the power of hearing bestowed upon them by an operation, or who had acquired it spontaneously, had been observed by scientific men for a sufficient length of time, to enable them to judge precisely, what power they derived from a new sense suddenly awakened, in the midst of those, which had been long exercised; what changes took place in their instinct, intellect, movements, voice, &c. by the developement of a faculty so important as that of hearing, is prepared to enjoy all the degrees of social life, or if he is only called upon to experience some of them.

After nine months of assiduous cares, in which he was aided by the advice of a number of enlightened persons, who felt a lively interest in his enterprise, M. Deleau presented his pupil to the academy, accompanied with a detail of the difficulties which he had had to encounter, and the results at which he had arrived.

The academy, wishing to bestow upon the fact the authenticity it merited, proceeded to nominate commissaries to confirm all the circumstances, and to inquire into the actual condition of Honor Trezel. What I am about to relate, is an extract from the report made on the occasion.

Claudia Honor Trezel, at present aged ten years, born at Paris, of poor parents, was of that class of deaf and dumb persons who are unable to hear even the most violent sounds or explosions.

Her physiognomy, the index of her intellect, presented but little expression; she dragged her feet in walking, and her pace was vacillating; she did not know even how to blow her nose; and only communicated her principal wants by a certain number of signs. The operation which was performed upon her, is not of recent invention: it was imagined, towards the termination of the last century, by a deaf person of Versailles, who, fatigued by his situation, succeeded in curing himself. It is, at present, employed by all the physicians who treat the diseases of the ear, and more particularly, by Dr. Itard; it consists of injections of air, or different liquids, thrown into the cavity of the tympanum through the eustachian tube. It is attended with many serious inconveniences, which, happily, were not present in the case of the young Trezel.

The first days which succeeded the developement of her faculty of hearing, was to Honor a period of extacy. All kinds of sound produced in her the most ineffable delight; she sought them with avidity. She was particularly in extacy on hearing a musical snuff-box. But some time was necessary to convince her, that the voice afforded a means of communication. At first, she was attentive not to the sounds of the voice, but to the movement of the lips, which accompanied them; she also believed, that an infant of seven months spoke like adult persons, because she saw the movement of the lips. She was shortly convinced of her error; and from thence she became sensible that, it was to the sounds she was to attach importance, and not to the motion of the lip.

But the unfortunate child, having heard a magpie pronounce some phrases, generalized from that particular fact, and concluding from hence, that all animals were endowed with the powers of speech, absolutely wished to make a dog which she fondled speak. She had recourse to violence to compel him to pronounce papier, pain, the only words which, as yet, she was able to pronounce; the animal, alarming her by its cries, she desisted from her enterprise. The first period of her enjoyment of the faculty

of hearing, produced an important change in the physical condition of Trezel; her pace became firm; the gloomy cast of her countenance was converted into an air of smiles and gaiety. She acquired the power of blowing her nose, and ceased to drag her feet in walking.

A whole month passed away, and Honor remained nearly in the same condition. Absorbed by her sensations and moral observations, she was not able to seize the syllable of which the word was composed; nearly three months elapsed before she could distinguish a few compound words, and comprehend their meaning, and that of short and simple phrases.

Some time was also necessary to enable her to comprehend the direction of sound. A person having concealed herself in a chamber where there was also an infant, called her, and it was with much difficulty, that she discovered the retreat of the person who called her; and when she did succeed, it was more by the assistance of the eyes, and reflection, than by the employment of her ears.

In the mean time, all Honor's lively interest in the sensations furnished her by her ears, did not prevent her from making an observation still more important. Her larynx also formed sounds; and to the pleasure of hearing them, was joined that of producing them; and in this manner Trezel presented phenomena still more novel and curious.

The instrument of voice is composed of a great number of different pieces, among which we observe muscles, bones, cartilages, and membranes; and it would have been remarkable that, without any previous practice, all these should be made to act in concert in such a manner, as to produce vocal sounds, and appreciable articulation. This, however, did not take place. The first sound that Trezel was able to articulate, was low and grave; she pronounced with difficulty A, O, U; and it was not until a later period, that she was enabled to pronounce the other vowels. The first words she was able to pronounce, were "*papier, tabac, feu,*" &c.; but when she attempted to articulate more complex words, she made a variety of contortions of the lips, tongue, and all the instruments of pronunciation, the use of which she was entirely ignorant, resembling in this those persons who embark in the art

of dancing or swimming, and exhaust themselves in fruitless efforts and ungraceful movements.

By repeated efforts, she became enabled to pronounce a few compound words, which, at first, were beyond her abilities.

It was, at this time, that she conceived herself on an equality with other children of the same age; and that, satisfied with herself, and proud of her new situation, she held in great disdain the former companions of her unhappy condition, and did not wish to see them again. Some persons who saw her at this time, could discern in her, traits of a happy disposition.

Independent of this little freak of vanity, Trezel advanced but little in pronunciation. A great number of syllables escaped her altogether, or could not be articulated but with the greatest difficulty. Perhaps she would never have surmounted this difficulty, if they had not ceased to address her ear alone, to converse, at the same time, with her eyes. They traced the different syllables upon a tablet, and from this time she pronounced much better, seizing with much more elegance the assemblage of vowels and consonants, and their reciprocal influence. We may, from hence, confirm a remarkable fact; that is, that the operations of the eye and larynx are formed with facility and promptitude; while that of the ear and the organs of voice are difficult, and much more slowly accomplished. Thus, as soon as Honor perceived the syllables written, she was enabled to pronounce them, provided this was at the same time performed near her; but if the tablet was removed upon which the letters were written, it was in vain that certain syllables were articulated to her ear in the most distinct manner; since she was unable to pronounce them by herself, she could therefore perceive, much more readily, the relation of sounds with written characters, than with the action of the larynx.

In pursuing this plan, however, Trezel learned to read and write with considerable facility; but like those persons who learn a foreign language, and who, in general, are able to read and write it for a length of time, before they acquire the power of conversing, Honor, as yet, reads with her eyes, and could write infinitely better than she could speak.

Her pronunciation was extremely defective: the R, R's, in particular, were pronounced with a singular and disagreeable kind of

sound. She appeared to be entirely ignorant of the different degrees of accent; but when we recollect her primitive condition, we cannot but be pleased to see her arrived at such a degree of instruction after so short an interval.

Honor still presented another phenomenon, which engaged the attention of the commissioners of the academy. When a word was addressed to her very distinctly, she immediately repeated it. Thus, for example, when she was called, she did not fail to repeat her own name. It seemed, that the most important part with her, was to repeat the words which she had heard. If her instructor wished to address himself to her mind, it was accomplished by means of gesture and the expression of his countenance. The child herself could not express her ideas with promptitude and facility, but by means of signs; and it was only from them that they could judge of her intelligence and the promptitude of her conception.

In this point of view, Honor presented a phenomenon well worthy of interest. Having acquired a new means of conveying her ideas and wishes, we should have supposed "a priori," that she would have neglected those means which she had heretofore employed, which were so far inferior to the faculty of speech. As yet, however, precisely the contrary was what happened. The natural language of Honor, (that of signs) instead of declining and giving way to oral language, increased with rapidity, and acquired a perfection and point greatly superior to that which it presented previous to her acquiring the faculty of hearing.

In the mean time, in her intercourse with children of a similar age, Honor began to employ simple words, particularly substantives, to make known her principal desires. Time, perhaps, will be sufficient to induce her to make more frequent and perfect use of verbal language; but it is also possible, that she may always remain in a condition vastly inferior to other persons in this point of view; since we have numerous examples of children, who may be called dumb, merely because a certain effort of the ear is necessary to comprehend the words, and considerable exertion of the larynx to speak. Those finding in the employment of sounds an easy means of communication, neglect to exercise the ear and organs

of voice, and hence remain classed among the dumb, although in reality they are neither deaf nor dumb.

In conclusion, Honor Trezel, who was completely deaf for the space of a year, even so far as not to be sensible of the loudest explosions, is, at present, sensible of sounds of all kinds, knows when they proceed from a distance, can discriminate their characters; shun carriages and horses, and flies to open a door when she hears a knocking. She can, at present, appreciate melody, and listens with pleasure to both vocal and instrumental music; she even endeavours to imitate the modulations of the voice, without as yet being able to succeed; she can also appreciate and execute all the articulations of our language; comprehends analyses, and repeats from memory, a certain number of phrases not above her capacity, and replies to them; she performs with the voice whatever she is directed by her instructor; but she cannot, as yet, do the same when requested by other persons.

These are, doubtless, results of the highest importance. When we reflect upon all that has been necessary for the child to surmount, to arrive at them, all the new ideas and associations which have been established between her ears and intellect, between these and the organs of speech, between her ears and larynx, &c. it is difficult not to indulge the hope, that her physical and moral condition, will continue in a progressive state of improvement.

But not anticipating any thing, let us attend to the result of experiment, which, in this, as in all new questions, can only serve for our guide.

The academy applauded the efforts of M. Deleau, for having endowed a being with social life, whom nature had denied all power of enjoying it. They recommended him to continue the education which he had so successfully commenced; to complete it by all the means that might be in his power; and thus to lay the foundation for a species of education, which, at some future day, might be numbered amongst the ameliorations of the human condition; and which, in the present instance, has enabled the assistance of art to supply the defects of nature.

ARTICLE VIII.

COMMUNICATION TO THE AGRICULTURAL SOCIETY OF SOUTH-CAROLINA, ON THE CULTIVATION OF MAIZE. By THOMAS PINCKNEY, Esq.

GENTLEMEN—Desiring to try to what extent I could improve, by manure, the product of very poor land; and being of opinion that Indian corn would bear the effect of high manuring, better than any other grain, I planted two acres of it, in the year 1824, on a sandy spot, naturally so poor, that it was thought incapable, in that state, of producing corn; and had been, in general, cultivated with sweet potatoes, which, by slight manuring, produced scanty crops. I put on this ground a large quantity of manure, but did not measure it; nor did I make minutes of other particulars of the cultivation, so as to be able to give a satisfactory account of it. The crop, however, of one of the acres, being gathered separately and measured, yielded one hundred and twelve bushels of flint corn in the ear, which is equal to fifty bushels of shelled corn.

This product so much exceeded my expectation, that I determined to repeat the experiment; and last year I planted the acre which had produced the above with Guinea corn, and the two adjoining acres with maize, in the following manner: The land was laid off for beds six feet two inches, from the centre of one to the centre of the adjoining bed, making thirty-four beds on the acre. The alleys of the preceding year being intended for the beds of the present, a light Freeborn plough, drawn by one mule, passed forward and backward through them, turning the earth toward the old beds, and leaving a deep furrow in the centre: in this furrow were laid the corn stalks of the last year, and on them was placed the manure, which, from reckoning the number of loads, and measuring several of them, I calculated to amount to 3000 bushels, on the acre which had been well manured the preceding year, and seventeen hundred of that which had previously received none, or only a slight manuring. On this list the old beds were reversed by the plough, and the new ones finished by the hoe, leaving them tolerably high and wide at top. On each bed,

two rows were laid off by line fifteen inches apart, with holes on each line, three inches long, and twenty-one inches from centre to centre: the holes were formed by a simple wooden instrument, which made four at a time; those on one line being placed opposite to the centre of the interval of the other; four or five grains of seed, selected from the stalks, which had borne three ears, and which had been for thirty-six hours soaked in strong brine, and then rolled in lime, were dropt in each hole, and covered by the foot. An eight foot wooden roller, extending across two beds, with the mule walking in the alley, was then drawn over them.

The first acre was finished on the 7th of March, and on the 31st, the few deficiencies occasioned by the birds, were supplied from the thicker parts. The second acre being prepared on the 5th of April, and the first acre having a superabundance of plants, these were transplanted into the holes made on one half of the second acre; those on the other half, were sown in the manner above described.

When the corn was about a foot high, a furrow slice was ploughed from each outside row, and in a day or two thrown back by the plough: the interval between the rows on the bed was hand-hoed, and the corn thinned to one stalk in each hole. A violent storm of wind and rain took place on the 2d of June, when the first acre was about six feet high; all of it was beaten down, and about one third of the stalks broken off. The corn on the second acre being near a month younger, did not suffer so much; a few only of the stalks were broken, and it sooner recovered its position. Hands were sent in to disentagle and raise the fallen stalks; but when I left it on the 9th of June, its appearance was very discouraging. Another storm, though not quite so violent, happened a short time afterwards, which our manager thinks injured it nearly as much as the first. Nothing uncommon attended the further cultivation of these two acres; they were only twice ploughed and moulded by the hoe; the corn being so luxuriant and thick, that grass could not thrive under it; for which reason, no peas were sown with it. It was remarked, that the half acre of transplanted corn appeared much better than the other half; and I should have stated, that great part of the acre which the preceding year produced fifty bushels, was transplanted. The same result has al-

ways taken place, where I have had an opportunity of comparing sown and transplanted maize. I do not mean that which is transplanted to fill up deficiencies, which, being overshadowed, seldom succeeds; but, I am off opinion, that an entire crop of transplanted corn, by its numerous advantages, would well compensate the difference of labour.

The blades were stripped early in August, those of the first acre were separately housed; and when perfectly dry in October, were weighed, and gave seven hundred and seventeen pounds.

The corn was broke in early in October, and carefully measured, the second acre (now the first in product,) yielded forty-four bushels and three pecks, the other gave thirty-six bushels, two pecks and two quarts, as appears from the certificate of our manager, Mr. H. Gee, which is subjoined. But we are both of opinion, that if the first acre had not been injured by the storms in June, it would have produced seventy bushels. The average of the two acres was forty bushels, two pecks and six quarts.

An adjoining piece of land, estimated an acre, was sown with maize for comparison, in chequers five feet square; manured with about a peck in each hill, ploughed in both directions, and tended with the hoe in the usual manner. But in re-measure by Mr. Gee, it was found to contain 47,300 square feet, instead of 44,100, which is our common plantation acre. This piece produced 18 bushels, 2 pecks and 7 quarts; or 12 7-8 bushels per acre.

The acre sown with Guinea corn, produced only twenty-two bushels. This was very probably, owing to our ignorance of its proper mode of culture. The drills in which it was sown, were only three feet apart, and the plants left thick in the rows; the consequence was, that it ran up very tall, and bore only a few small ears at the top, putting out no lateral ears, which are, usually, the most numerous.

The result of these experiments appears to prove, that by abundant manure and thick planting, large crops of maize may be raised on the poorest land, that is dry enough for its culture.

The question to be decided is, whether, on such land, when applied to this grain, it is most advantageous to concentrate the manure which may be within the farmer's reach, thereby producing the largest product on a small space, or to spread it over a

wider surface. I am not prepared, with sufficient data, to offer an opinion on this question.

The fair mode of decision would be, to estimate all the charges which could be brought against an acre of maize cultivated in each way, giving them, respectively, credit for the proceeds of their product. But I do not know at what price to charge the manure, nor the rent of the land, nor to estimate several other incidental circumstances, which, in order to form a correct judgment, should be ascertained.

When, however, I consider the labour of clearing, fencing, and putting land in planting order; when I calculate the interest of the value, the taxes, the charges of management, and of cultivation on six acres compared with one, (for *that* I consider the smallest difference, between such land highly manured, and that planted in the usual manner,) I am disposed to think that, for this grain on poor land, concentrating the manure would be most advantageous.

Your respectful associate,

THOMAS PINCKNEY.

Medical, Philosophical & Agricultural Intelligence.

The subsequent account of some of the new chemical remedies, is taken from a neat little volume, containing a translation of Magendie's Formulary, and many other valuable prescriptions, translated by Dr. Dunglison, of the University of Virginia. The work, we think, deserving of patronage.

Morphine is the extractive principle of opium, and is obtained as follows, according to M. Robiquet:

Boil, for a quarter of an hour, a very concentrated solution of opium with a small quantity of magnesia, viz. 10 grains (8.2 troy) to the pound of opium, (15 oz. 7 dr. 1 gr. troy.) Collect the greyish and somewhat abundant deposit on the filter, and wash it with cold water. When this precipitate is well dried, treat it by weak alcohol for some time, at a temperature less than that of ebullition. By this means, very little morphine and much colouring matter is obtained. Filtrate and wash the precipitate by

means of a little cold alcohol; then strongly boil it in a large quantity of rectified alcohol; filtrate again while the liquor still boils, and the morphine will separate as the liquor cools. The colouring matter is got rid of by repeated crystallization. Morphine is a narcotic. Dose, one quarter to half a grain. There are two salts of morphine, the acetate and sulphate. *Acetate of morphine* is formed by adding acetic acid to morphine, in an evaporating dish, and letting the mixture slowly evaporate to dryness. The acid should be applied until turnsol paper becomes but slightly red. *Sulphate of morphine* is formed by adding diluted sulphuric acid to morphine, placed in double its quantity of water, until the mixture becomes neutralized evaporate, when crystals resembling silky tufts will be formed. This salt resembles sulphate of quinine. To distinguish them, treat them both with concentrated nitric acid, when the sulphate of morphine will turn red.

OFFICINAL PREPARATIONS.

Syrup of acetate of morphine.—Take of perfectly clarified syrup 1 pound, (15 oz. 6 dr. 1 gr. troy;) acetate of morphine, 4 grains, (gr. 3.281 troy.) Dose, one to two teaspoonsful.

Syrup of sulphate of morphine. is made the same as the above, adding the sulphate of morphine in place of the acetate. The dose is the same.

Preparation of Narcotine.—In order to obtain narcotine, according to the process of Sertuerner, opium must be exhausted by two parts of boiling ether; and this operation be repeated five successive times. The solution thus obtained, must be mixed and filtered, and the ether volatilized, until the whole is reduced to three-fourths. A product is then obtained, formed of two distinct parts, viz. of a saline crust, which consists of narcotine united with an acid, and of a brown, bitter, and acid liquor, containing resin, narcotine, and an acid, probably the acetic. In order to obtain the narcotine from this liquor, it must be subjected to evaporation; the residuum treated with boiling water, which does not dissolve the resin, and the narcotine be precipitated from the filtered liquor by ammonia. The narcotine is afterwards obtained from the saline crust, by depriving it first of the resin and caoutchouc, by means of rectified oil of turpentine, washing the residuum with

cold alcohol, dissolving it afterwards in hot, and precipitating the narcotine by ammonia. This precipitate, as well as the former, is then dissolved in the least quantity possible of hydrochloric acid, and again precipitated by ammonia."

One grain of this given to a dog produced stupor and a loss of nervous energy, but not sleep, and in twenty-four hours death. It has not been used medicinally.

Extract of opium deprived of narcotine.—Prepared by M. Robiquets as follows:

"He macerates coarsely divided opium in cold water, filtrates and evaporates to the consistence of a thick syrup, digests in rectified ether, and, after frequent shakings, decants the ethereal tincture, and separates the ether by distillation. He repeats this operation so long as crystals of narcotine appear as the residue of the distillation. When the ether produces no further effect, he evaporates the solution of opium to a pilular consistence; and thus obtains an extract which is entirely devoid of narcotine."

M. Magendie says, this preparation is weaker than morphine.

"Extract of opium deprived of morphine.—The process described under the article morphine, does not entirely deprive the opium of this alkali. The residuum always contains a certain quantity. M. Robiquet having communicated to me this fact, I was desirous of seeing whether some further preparation could not be obtained from a matter considered to be useless, and abandoned as such by the apothecaries.

"I remarked, that this residuum still exerted a certain narcotic property on animals and on man: a less marked one, it is true, than that of the common aqueous extracts, but sufficiently strong to make it perhaps useful in practice.

"This extract may be given by grains; four grains are not apparently equivalent to a grain of the ordinary aqueous extract, or to a quarter of a grain of morphine.

"Extract of opium deprived of morphine, ought to be kept by all apothecaries who prepare their morphine."

Iodine.—This substance has been long known, and lately, from the high recommendation of it by M. Coindet in goitre, and some other glandulous diseases, has attracted greatly the attention of the medical public. It is, however, we fear, rapidly falling in-

to the predicament of all popular remedies, that is, by making it a universal remedy too much is proved, and it, of consequence, will become quickly neglected. We read in almost every journal, of the wonderful effects of the various preparations of iodine in a variety of diseases, some of which we are constrained to question. This remedy, as far as we know, has not been fairly tried in Carolina. The remedy, in the many glandular affections to which our negroes are exposed, we think, might be highly valuable.

The following is the preparation:

“Preparation of Iodine.—It has been stated, that iodine is extracted from the mother waters, formed in the preparation of soda from sea-weeds, where it exists in the form of hydriodate of potash.

“These waters are obtained by burning the different fuci which grow on the sea shores of Normandy, lixiviating the ashes, and concentrating the liquor.

“To obtain the iodine, pour an excess of concentrated sulphuric acid on these waters, and boil the liquor, by degrees, in a glass retort to which a receiver is attached. The sulphuric acid seizes on the base of the hydriodate, and on the hydrogen of the hydriodic acid. Hence result sulphate of potash, water, sulphureous acid, and iodine; which latter passes into the receiver, along with a little acid in the form of a violet vapour, and is there condensed. To purify it, it must be washed, mixed with water which contains a little potash, and re-dissolved.

“Dr. Ure recommends the following formula to be adopted: Take eight fluid ounces of the brown liquid which drains from the salt which the soapmakers who employ kelp, boil up and evaporate to dryness; heat it to 230 deg. Fah. and add one fluid ounce of sulphuric acid, diluted with its own bulk of water. When the mixture cools, separate the crystals of the salts, which will form in it, by filtration through a woollen cloth, and add to the fluid poured into a matrass, 830 grains of black oxide of manganese in powder. A glass globe is then to be inverted over the mouth of the matrass, and the heat of a charcoal chaffer being applied, iodine will sublime in great abundance. It must be washed out of the globe with alcohol, then drained and dried on plates of glass, and purified by a second sublimation from dry quicklime.”

Mode of prescribing iodine.—Take of alcohol, at 35 deg. 1 ounce; iodine, 48 grains.

"This tincture should not be made long," says M. Magendie, "as it deposits crystals of iodine. It is to be feared, also, that the iodine may take up a portion of the hydrogen of the alcohol, and be thus converted into ioduretted hydriodic acid." Dose, 10 drops three times a day, which may be gradually increased to 20 drops.

Quinine and Cinchonine.—The value of the saline preparations of these substances is now generally known in this country, and would be generally used, if they were not so extremely expensive. Like all remedies, however, whenever they become extensively prepared, they will become cheaper, and more in common use. The following is the method of preparation:

Preparation of Cinchonine and Quinine.—Boil the bark in alcohol until it loses all its bitterness; evaporate to dryness in a water bath; dissolve the alcoholic extract entirely in boiling water, strongly acidulated with hydrochloric acid; add an excess of calcined magnesia, which, after boiling some minutes, will fix all the red colouring matter, and make the liquid clear. When cold, filtrate and wash the magnesian precipitate with cold water; dry it on a stove; separate all the bitterness by repeated digestions in boiling alcohol; mix the alcoholic liquors, and the cinchonine will crystallize as the fluid cools. The cinchonine, which is thus obtained, still contains a green fatty matter, which may be separated by solution in a very weak acid. If the acid be too strong, it will dissolve a part of the fatty matter, and the intended object will be thus defeated.

"Quinine may be obtained from the yellow bark by a similar process to the one described above.

"It has been said, that both cinchonine and quinine are to be found in all the three species of bark. They may be procured by one operation, as follows:

"After having obtained directly the sulphate of quinine, by the process described below, collect the mother waters and the washings of that operation; these contain the sulphate of cinchonine. It is probable that the sulphate has been rendered incrySTALLIZABLE by the small quantity of fatty matters which is contained in these

liquors. Decompose these liquors by magnesia or lime. Dissolve the quinine and cinchonine which they contain, by digesting the magnesia precipitate, when washed and well dried, in boiling alcohol. If the spirit be sufficiently charged, the cinchonine, which predominates, will crystallize; if it do not, further concentration is required. To purify the cinchonine, which is thus obtained, it must undergo a recrystallization. For this end, dissolve it in a sufficient quantity of boiling alcohol; it will thus become very pure. The alcoholic mother waters still contain quinine, which may be separated by evaporation."

PREPARATIONS.—QUININÆ SULPHAS.

"*Sulphate of quinine.*—M. Henry the younger, has lately made known an expeditious and cheap process, for obtaining directly the sulphate of quinine. He digests, repeatedly, in hot water, acidulated by sulphuric acid, (6 or 8 grammes [gr. 92.66, or gr. 123.55 troy] to each kilogramme [oz. 32.17 troy] of distilled water.) He blanches the liquors by means of hot lime, and washes the precipitate to separate the excess of lime. He repeatedly digests this precipitate, when well drained, in alcohol at 36 deg. (.837.) He then obtains, by distillation, a brown viscid matter, which becomes brittle when cold, and is very bitter. He digests it in hot water, acidulated by sulphuric acid; and the liquor, when cold, gives perfect crystals of pure sulphate of quinine. He has not succeeded so well in extracting the sulphate of cinchonine from the grey bark by this mode of preparation.

"The sulphate of quinine, obtained in this way, is in the form of white crystals, which are entirely soluble in water; little so, however, in cold, but more so in boiling, and especially in weakly acidulated water.

"QUININÆ SUPERSULPHAS.

"*Acid sulphate of quinine.*—M. Robiquet, by proceeding somewhat differently, has obtained a sulphate, the characters of which are not the same as those of the preceding. His sulphate is in solid transparent prisms, of a flattened quadrangular form, well terminated, and soluble even in the cold. M. Robiquet found, by comparative trials, that this difference arises from the prismatic

sulphate being acid, and the other alkaline. He is certain of the stability of these characteristics; for the salts preserve them without alteration after several crystallizations, although the subsulphate lost each time a small portion of its acid. M. Robiquet found, besides, that he constantly obtained the acid sulphate, only, when, in digesting the quinine in water, he could not succeed in dissolving it without a slight excess of acid; whilst, if he made use of alcohol, as the quinine is soluble in that fluid, it is more workmanlike, to add only the quantity of acid which is necessary for saturation.

"At present, the neutral sulphate has been obtained only in solution.

"COMPARATIVE ANALYSIS OF THE TWO SULPHATES OF QUININE.

"M. Robiquet has given an analysis of the two sulphates in the work just quoted; but as he found that the subsulphate lost a portion of its acid during each crystallization, he has given the composition of this salt, both after the first and third crystallization: 100 parts of acid sulphate of quinine, contain of acid 19.1, of quinine 63.5, 82.6; 100 parts of subsulphate, first crystallization, of acid 11.3, of quinine 79.0, 90.3; 100 parts of subsulphate, third crystallization, of acid 10.0, of quinine 89.9, 99.9.

"QUININÆ ACETAS.

"*Acetate of quinine.*—The characteristic of this salt, is the great facility with which it crystallizes; it is sparingly soluble in the cold, even with an excess of acid. It thickens in a mass when exposed to cold."

Emetine.—This substance, which was first discovered by M. Pelletier and Magendie, from ipecacuanha, is prepared in the following manner:

"*Preparation of coloured emetine.*—Powder the ipecacuanha, and digest it in ether at 60 degrees, (72°) to dissolve the fatty odorous matter. When the powder yields nothing more to the ether, exhaust it again by means of alcohol. Place the alcoholic tinctures in a warm bath, and redissolve the residue in cold water. It thus loses a portion of wax, and a little of the fatty matter which

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still remained. It is only necessary, further to macerate it on carbonate of magnesia, by which it loses its gallic acid, to redissolve it in alcohol, and to evaporate it to dryness.

“[Or digest ipecacuanha root first in ether, then in alcohol. Evaporate the alcoholic solution to dryness, redissolve in water, and drop in acetate of lead. Wash the precipitate, and then, diffusing it in water, decompose by a current of sulphuretted hydrogen gas. Sulphuret of lead falls to the bottom, and the emetine remains in solution. Dr. Ure asserts, that by this process emetine is obtained pure; this is, however, erroneous, as will be readily seen on comparing the chemical qualities common to this and the above preparation, with those exhibited by pure emetine, as detailed in the next article.]

“Emetine, when thus prepared, is not quite pure, as we at first thought. But it may be used with advantage as a medicine in this state. It appears in the form of transparent scales, of a reddish brown colour. It is nearly devoid of odour. It has a bitter, but not nauseous taste. It is capable of supporting the heat of boiling water, without undergoing change; is very deliquescent, soluble in water, and incrySTALLIZABLE.”

This extract appears to be the principle of ipecacuanha, which has an emetic action; and hence its name. M. Magendie recommends, that 4 grains be dissolved, and small divided doses of this substance, be given at short intervals; 1-4 of a grain sometimes produces vomiting. He says, it has all the effect of ipecacuanha, with the advantage of being tasteless: of course, this remedy is to be used as an emetic or sudorific, as the case may be.

Pure emetine is prepared as follows:

“To obtain pure emetine, it is necessary to substitute calcined magnesia for the carbonate, used in the former process; a sufficient quantity of this base being added, to take up the free acid which exists in the liquor, and unite with that which is combined with the emetine.

“The emetine, thus isolated, and rendered less soluble, is precipitated in combination with the excess of magnesia. This magnesian precipitate, after being washed by means of a little very cold water, to separate the colouring matter, which is not combined with the magnesia, must be carefully dried and digested in

alcohol, which dissolves the emetine. After the emetine has been separated from the alcohol by evaporation, it must be redissolved in a diluted acid, and blanched by digestion with purified animal charcoal. It must then be precipitated by a salifiable base.

"The waters used to wash the magnesian precipitate still contain emetine, which may be separated by a second series of operations.

"Pure emetine is white, pulverulent, and unalterable by the air; although coloured emetine is deliquescent. It is scarcely soluble in water, but is very easily dissolved in ether and in alcohol. Its taste is slightly bitter. It restores the blue of turnsol when reddened by an acid. It is dissolved by all the acids, the acidity of which it diminishes, but without entirely destroying it. It resembles veratrine, in forming evidently crystallizable saline combinations with acids. It may be precipitated from these combinations by the gall-nut, like the alkalies of the different species of cinchona."

The dose is 1 grain dissolved in acetic or sulphuric acid, as it is slightly soluble in water.

It is pleasing to observe the progress of analytic chemistry in France, and the substances which, in consequence, are discovered. We question, however, whether any advantage is obtained in getting into general use preparations so very powerful, and which, in small doses, may produce such deleterious consequences. We doubt, whether in consequence of the expense of the preparation, and the great power of the medicine, emetine will soon supersede in this country ipecacuanha and tartar antimonii. In some cases, however, it may be used with advantage.

"*Gentianine*.—This is obtained from gentian as follows:—Digest powdered gentian in cold ether. A greenish yellow tincture is obtained at the end of forty-eight hours. If this tincture be filtered, and the liquor sufficiently concentrated, by exposure to heat in an open vessel, it forms, on cooling, a yellow crystalline mass, which possesses strongly the taste and odour of gentian.

"Digest this mass in alcohol until it ceases to give a lemon colour. Add the washings together, and expose them to a slight heat; the yellow crystalline mass re-appears, which, towards the end of the evaporation, becomes solid. This mass is very bitter.

Redigest in weak alcohol, and all will be redissolved, except a certain quantity of oily matter.

"This last alcoholic solution, besides the bitter principle of the gentian, contains its odorous matter, and also an acid substance.

"By evaporating this liquor to dryness, dissolving the matter in water, adding a little well-washed calcined magnesia to it, and by boiling and evaporation in a water bath, the greatest part of the odorous matter of the gentian may be driven off. The bitter acid is also taken up by the magnesia, and the yellow bitter principle remains partly free, and partly combined with the magnesia, to which it gives a fine yellow colour. The greater part of the bitter principle may then be obtained pure and isolated by boiling the magnesia in ether, and evaporating the solution. If it be desirable to separate still more of the bitter principle which the ether has failed to take from the magnesia, it may be done by digestion in enough oxalic acid to make the liquor acidulous. The acid unites with the magnesia, and the bitter principle, which is left free, may be obtained by the means indicated above.

"*Properties of gentianine.*—Gentianine is yellow, inodorous, and possesses very strongly the aromatic bitterness of gentian; more decidedly so, however, when it is dissolved in an acid.

"It is very soluble in ether and in alcohol, and may be separated from them by spontaneous evaporation in the form of very small, yellow, needle-like, crystals. It is much less soluble in cold water, which it renders, however, very bitter. Boiling water has more action on it.

"Its colour is much deepened by the diluted alkalies, which dissolve rather more of it than water does.

"Acids weaken its yellow colour very notably. Its solutions in the sulphuric and phosphoric acids are even almost colourless. Those, with the other weaker acids, however, such as the acetic, are yellowish. Concentrated sulphuric acid carbonizes it, and destroys its bitterness.

"Gentianine, exposed in a glass tube to the heat of boiling mercury, is partly decomposed, and partly sublimed in the form of small yellow crystalline needles.

"Gentianine does not sensibly change the colour of turnsol, either when blue or when reddened by acids. It appears to be neutral."

This substance is a powerful tonic. The officinal preparations are, tincture of gentianine, alcohol at 24 deg. 1 ounce, gentianine 5 grains. This may be given in from 1 to 2 drachms, (as M. Magendie says, 2 grains produced no unpleasant effect) diluted according to taste.

Syrup of gentianine.—Take of syrup of gentianine 1 pound, gentianine 16 grains.

M. Magendie says, "this is one of the best bitters that can be prescribed in scrofulous preparations." We shall extract no more preparations from this work, but recommend it to our readers.

Domestic.

In the last number of the Medical Recorder, the reviewer of Richerand's History of Surgery, observes, that a part of the jaw has been amputated in the United States, by Drs. Motte, McClelland, Simons, and Batchelder; adding, that as far as he has learnt all the cases have died. While, in the same number, in a review of our journal, the two cases of Dr. Simons, as reported by us, are mentioned, as well as the fact of their recovery. We hope the respectable editor, in his next, will correct this discrepancy between the reviewer of Richerand and the reviewer of our journal.

We must correct another error in the Medical Recorder. We are not, in any manner, connected with the Medical College of South-Carolina, although we are friendly to its success.

Amputation at the shoulder joint.—Dr. J. Wagner, of this city, has lately performed this operation, in a manner highly creditable to himself and the profession. The patient, now the eighteenth day, is doing well. The man was bit by a snake, and some of his associates put a tight ligature high up on the arm, to stop the progress of the poison; in consequence of which, the circulation was completely checked, and general gangrene below the ligature ensued. The operation was performed twelve days after the accident.

Medical College of South-Carolina.—The degree of Doctor of Medicine, was conferred by the Medical Society of South-Carolina, on twenty-six gentlemen, recommended to them by the Facul-

ty of the Medical College of South-Carolina. We are happy to announce the increasing prosperity of this institution.

The following are the names of the Graduates:

A. Baldwin, Augusta, (Ga.) Dissertation *Venæsection.*

M. Laborde, Edgefield, (S. C.) Dissertation *de Cholera Infantum.*

Wm. B. Ball, Milledgeville, (Ga.) Dissertation on the Medical Topography of Georgia.

Wm. M. Lee, Charleston, (S. C.) Dissertation *de Hydrargyri effectus morbidos arcendo et curando.**

Daniel Bradwell, St. Matthew's. Dissertation on the circulation of the blood.

Thomas Elliott, Charleston, (S. C.) Dissertation on Acupuncture.

Samuel W. Logan, Charleston, (S. C.) Dissertation on Dyspepsia.

James R. Postell, Savannah, (Ga.) Dissertation on Parturition.

Alexander Verdier, Beaufort, (S. C.) Dissertation on Dysentery.

Henry H. Coxe, Fortville, (Ga.) Dissertation on Hydrocephalus.

Robert Lebby, Charleston, (S. C.) Dissertation on *Lycopus Virginicus.*

Edward Coppee, Savannah, (Ga.) Dissertation on *Leucorrhœa.*

T. W. Taylor, Savannah, (Ga.) Dissertation on Epilepsy.

Wm. S. Pennall, Abbeville, (S. C.) Dissertation on Croup.

John E. Tims, Ireland. Dissertation on Phrenitis.

T. S. Garrett, Edgefield, (S. C.) Dissertation on *Gelsemium Sempervirens.*

A. A. Ulmo, Charleston, (S. C.) Dissertation on Apoplexy.

B. B. Strobel, Charleston, (S. C.) Dissertation on *Aralia Spinosa.*

R. Crawford, Winnsborough, (S. C.) Dissertation on Indigestion.

* Dr. Lee received from the Medical Society, the premium for the best Latin thesis.—*Editor.*

Charles F. Gary, Edgefield, (S. C.) Dissertation on Inflammation of the Liver.

J. D. Newton, , (Ga.) Dissertation on Hydrocephalus Acutus.

G. M. Cannon, St. James', Santee. Dissertation on Remittent Fever of Children.

Joseph Milligan, Charleston, (S. C.) Dissertation on Tetanus.

Wm. McGill, Georgetown, (S. C.) Dissertation on Intermittent Fever.

Paul W. Connor. Dissertation on Hepatitis.

Wm. Cuckow, Charleston, (S. C.) Dissertation on Cholera.

The lectures in this institution will be resumed on the second Monday in November next.

Anatomy, by John Edwards Holbrook, M. D.; fee, - \$20

Surgery, by James Ramsay, M. D. - - 15

Institutes and Practice of Medicine, by Samuel Henry

Dickson, M. D. - - - - - 20

Obstetrics and Diseases of Women and Infants, by

Thomas G. Prioleau, M. D. - - - - 15

Materia Medica, by Henry R. Frost, M. D. - - 15

Chemistry and Pharmacy, by Edmund Ravenel, M. D. 20

Natural History and Botany, by Stephen Elliott,

LL. D. - - - - -

Demonstrator of Anatomy, by E. Geddings, M. D. - 10

The faculty of the college announce to the public, that a new and spacious building is in a state of forwardness, and will be completed by the commencement of the session; and in addition to the numerous advantages hitherto presented by this institution, arrangements have been made with Professor Dickson, now in Europe, for furnishing the anatomical cabinet, with an extensive and choice collection of preparations, to be selected in France and Italy, and calculated to afford every facility to the student of medicine. The professor of chemistry will also receive a valuable addition to his former apparatus, which will enable him to give a complete course of experimental chemistry.

The dissecting rooms will be opened at an early period of the session, under the particular direction of the demonstrator of ana-

tomy, who, in addition to a course of lectures on minute, descriptive and surgical anatomy, will devote, to the different classes under his charge, a certain number of hours every day, with a view of instructing them in the manner of dissecting and displaying the different parts of the body, and of making and preserving anatomical preparations. Students will not only be particularly instructed in the anatomy concerned in important surgical operations, but, independent of the principles taught, and demonstrations given by the professor of surgery, they will be made to execute those operations under the superintendence of the demonstrator, according to the most approved methods practised in the French and English Hospitals.

Among the advantages of this institution, the pupils have the privilege of a gratuitous attendance on the Alms House and Marine Hospital, where, during the daily visits of the physicians of those institutions, such clinical remarks will be made as may be of importance to the students.

They will also have access to the extensive and valuable collection of medical books belonging to the Medical Society, on the most liberal terms.

In order to entitle an individual to examination for a degree, it will be necessary that he shall have attained the age of twenty-one years, be of good moral character, and have studied medicine for three years, with some established practitioner. He shall also have taken a ticket of each professor for two courses of lectures, or shall have attended one full course at some other respectable medical school, previously to his becoming a member of this institution. Those who have for two seasons, taken the tickets of any or all of the Professors, shall be entitled to admission to his or their lectures, without further expense.

A premium of twenty dollars, in books or money, is annually offered for the best Latin or Greek Thesis or Dissertation, to show a marked encouragement for classical attainments.*

JOHN EDWARDS HOLBROOK,

Dean of the Faculty.

Charleston, June, 1826.

N. B.—Good boarding can be obtained in the neighbourhood of the College from \$4 to \$5 per week.

* This is given by the Medical Society.—*Editor.*

Agricultural Society of South-Carolina.—We believe we are doing an acceptable service, in presenting our readers with a history of the origin of this valuable society, as taken from its records, which was kindly loaned us by its respected secretary, C. E. Rowand, Esq.

On the 9th of August, 1785, several gentlemen assembled at the City-Hall, for the purpose of establishing a society to encourage agriculture. Having appointed the Hon. Thomas Heyward, jun. Chairman, they proceeded to business, and appointed the Hon. Wm. Drayton, the Hon. Thomas Heyward, jun. the Hon. John Mathews, Thomas Bee, Thomas Pinckney, Gen. C. C. Pinckney, Ralph Izard, and Edward Rutledge, Esqrs. a committee to form rules for a society, the meeting adjourned.

On the 24th of August, the society was organized, and the following were the first members of this society: The Hon. Thomas Heyward, jun. the Hon. John Mathews, Ralph Izard, William Hopton, William Drayton, Thomas Bee, Charles C. Pinckney, William Washington, David Campbell, John Rutledge, Edward Rutledge, James Ladson, Peter Smith, William Fishburn, Thomas Hutchinson, George Taylor, Andrew Johnston, John Deas, jun. Patrick Carns, Aaron Loockock, Henry Middleton, Stephen Drayton, Thomas Odingsall Elliott, Thomas Pinckney, William Smith, Maurice Simons, Thomas Fuller, jun. Keating Simons, Richard Hutson, Peter Hutson, Peter Bounetheau, John Loyd, Thomas Gadsden, John Moore, Hugh Rutledge, Daniel Horry, William Harleston, Isaac Harleston, George Logan, Edward Harleston, John Ewing Calhoun, James Graham, Esqrs.

The following gentlemen were elected officers:—The Hon. Thomas Heyward, jun. President; Thomas Pinckney, Esq. Vice-President; Peter Smith, Esq. Treasurer; Peter Bounetheau, Esq. Secretary.

At this meeting, it appears, an animated address was presented, explaining the object of this society, and the influence which it was calculated to have upon the improvement of the country—an address, displaying the public spirit and patriotism which characterized the worthies of those days. A society thus organized, composed of men of intelligence and patriotism, and some of them identified with the history and glory of their country, it may well be sup-

posed, had an important influence upon the agricultural character of the country; and in all of their proceedings, we see evinced an ardent desire for her improvement. The society was composed not only of planters, but intelligent members of all professions. They felt, that the prosperity of this state mainly depended upon its agricultural improvements; and they believed, they were performing an essential service to their country when they organized this society. In the course of the proceedings, we observe, that they had several communications from distinguished patriots and citizens of other parts of the United States; among others, a communication from the venerable Jefferson, recommending the cultivation of the olive. Our limits will not enable us to enter into details; we are only desirous to show, how soon after the achievement of our independence, the patriots of our state looked to the improvement of their country. From a variety of causes, among others, the death of some of the members, and the absence of others, the bad state of the finances, in consequence of expensive agricultural experiments, the society declined, and was almost destroyed, until in 1821, when, by the spirited exertions of some of its members, it was revived, and has since gradually increased in number and importance; and we hope to find every public spirited and intelligent citizen give their aid in promoting its important and noble purposes. The product of our two valuable staple commodities, have rendered us inattentive to other culture; and this state is indebted to the northern states for hay, to our neighbouring southern states for corn, and to the western for cattle and horses. In consequence, although the product of our country is considerable, the articles of food are dear. There can be but little doubt, that many of our planters will soon be compelled to substitute other culture for cotton; and the adaptation of proper and useful culture to our soil, is to be hoped for, only through the medium of an agricultural society, composed of intelligent, scientific, and experienced men, who will weigh well any plan or suggestion before they recommend its adoption. The example set by the Agricultural Society of South-Carolina, has already given rise to a great many societies throughout the state; the important and beneficial influence of which, must exceed calculation.

CHARLESTON ANATOMICAL ROOMS, FOR PRIVATE INSTRUCTION IN PRACTICAL ANATOMY, AND THE OPERATIONS IN SURGERY.

The subscriber proposes to commence a course of dissections and demonstrations in practical anatomy, at an early period of the ensuing season; and to teach the art of making and preserving anatomical preparations.

The surgical anatomy of all parts connected with the important operations, will be dissected and demonstrated; and the mode of performing all the surgical operations, as practised in the English and French Hospitals, will be taught to such classes as may offer.

Rooms will be provided with all necessary instruments, and with every convenience for the improvement, comfort, and health of the student.

Terms.—Fee for the dissecting room and demonstrations, \$10; fee for surgical anatomy and operations in surgery, \$15.

Private pupils will be received at the following fees; they will be examined upon all the branches of professional study, and be entitled to tickets for the dissecting room and the operations, gratis.

For the winter season, \$60; for one year, \$100; whole term of medical education, \$300.

JOHN WAGNER, Surgeon.

Anatomical Rooms, Broad-street, March, 1826.

Mr. Esswein, Surgeon Dentist, Graduate of the Faculty of Medicine at Paris, and licensed by the Medical Society of South-Carolina, has commenced to practise Dentistry in this city.

We are happy to find regularly educated gentlemen, devoting themselves to this branch of our profession, so useful and important. By this means, this branch will be elevated to that rank to which it is entitled. Commendation of Mr. Esswein would be altogether superfluous, as he is well known among us.

The Medical Society have elected Dr. Andrew Duncan, jun. of Edinburgh, and Dr. James Johnson, of London, honorary members of their body.

verlagende (sympathicolytische) werking. Tegelijkertijd werken zij echter stimulerend op het centrale zenuwstelsel en in het bijzonder hun eigenschappen als aphrodisiacum bij beide geslachten maken de toepassing als adrenaline-antagonist in de therapie in grote mate onmogelijk.

Onder de kina-alkaloïden heeft vooral hydrocinchonidine uitgebroken sympathicolytische eigenschappen.

Voorts verdienen hier vermelding Alstonia alkaloiden, bulbopapnaine, Hydrastis alkaloiden en onder de Papaver alkaloiden papaverine en laudanotine.

Sinds kort is de aandacht gevallen op bloeddrukverlagende alkaloiden van *Veratrum viride* en enkele verwante soorten, zoals *Veratrum album*. Van de Veratrum-alkaloiden zijn maar enkele werkzaam op de bloeddruk en slechts een deel hiervan is werkzaam als sympathische bloedvatverwijders en als anti-acceleratoren, w.z. remmen de door adrenaline teweeggebrachte versnelling van de hartfrequentie.

In de loop van 1952 zijn als speciale hypotensieve Veratrum alkaloiden beschreven neogermitrine, germinitrine en germanitrine. Het gebied is nog in snelle ontwikkeling.

II. Verschillende chemische verbindingen.

In de eerste plaats zijn van belang de tetrahydro-isochinoline, die door Hjort c.s. in 1938 onderzocht zijn. Sommige bezitten adrenalinewerking, maar verschillende zijn karakteristieke adrenaline-antagonisten.

Sommige purine-derivaten, waaronder coffeïne en theobromine, vertonen anti-adrenergische effecten op hart en bloedvaten. Ook thiocyanaten, bijv. natriumthiocyanaat, zijn in het onderzoek betrokken. Ze bleken echter te toxisch voor therapeutische toepassing.

De volgende tabellen geven een vergelijking van de sympathicolytische werkzaamheid van enige van de boven beschreven verbindingen.

Inversie van het adrenaline-effect op de bloeddruk bij de hond.

verbinding	dosis intraveneus
Phenylaethyl-diaethyl-amine	80 mg/kg
hydrocinchomidine	40
Dibenamine	10—20
phenoxyaethyl-diaethyl-amine	10
Priscol	10
N-meth. tetrahydro isochinoline	5
Prosympal	1
Yohimbine	1
Ergotamine en ergotoxine	0,1—1
Dihydro-ergotamine	0,2—0,5

Antagonisme tegen het adrenaline effect op de iris van de muis.

verbinding	dosis minima activa
Dibenamine	500 mg/kg
Yohimbine	250
Prosympal	100
Dihydroergotamine	50
Piperoxane	50
Priscol	25